

**MAINTENANCE MANUAL  
(Domestic and International)**

- **STERIS Ten Sixteen (1016)  
and Ten Sixteen Plus (1016+)**
- **Amsco Eagle® Ten and Eagle Ten +  
TABLETOP STEAM STERILIZERS**

**(03/31/01)  
Rev. 4**

**P-764323-978**

# A Word From STERIS Corporation

## IMPORTANT

The operation and maintenance procedures recommended by STERIS are described in this manual. Only these recommended maintenance procedures should be followed.

A listing of the safety precautions to be observed when operating and servicing this equipment is in Section 1 of this manual. Do not operate or service this equipment until you have become familiar with this information.

Any alteration of this equipment not authorized or performed by STERIS Engineering Service which could affect its operation will void the warranty, could adversely affect sterilization efficacy, could violate federal, state, and local regulations, and could jeopardize your insurance coverage.

## INDICATIONS FOR USE

### **STERIS Ten Sixteen (1016) and Amsco Eagle Ten**

The STERIS Ten Sixteen (1016) and Amsco Eagle Ten are tabletop steam sterilizers designed to sterilize heat and moisture stabile materials **in hospital, dental, or veterinary environments**. The STERIS Ten Sixteen (1016) and Amsco Eagle Ten Tabletop Steam Sterilizers have a 10 x 16" (254 x 406 mm) chamber configuration.

The STERIS Ten Sixteen (1016) and Amsco Eagle Ten Tabletop Steam Sterilizers are equipped with the factory-programmed set sterilization cycles and cycle values shown in the table below.

### **STERIS Ten Sixteen Plus (1016+) and Amsco Eagle Ten +**

The STERIS Ten Sixteen Plus (1016+) and Amsco Eagle Ten + are tabletop steam sterilizers designed to

sterilize heat and moisture stabile materials **in hospital, dental, laboratory, scientific, or veterinary environments**. The STERIS Ten Sixteen Plus (1016+) and Amsco Eagle Ten + Tabletop Steam Sterilizers have a 10 x 16" (254 x 406 mm) chamber configuration.

The STERIS Ten Sixteen Plus (1016+) and Amsco Eagle Ten + Tabletop Steam Sterilizers allow the user to alter the preset values for sterilize temperature, sterilize time, and dry time for gravity cycles, and for sterilize temperature and sterilize time for liquid cycles. The minimum recommended values are listed in the table below. Note that these are the cycles and loads that have been validated; if different cycles are required, it is the responsibility of the health care facility to validate each cycle to assure that the proper Sterility Assurance Level (SAL), as well as drying efficiency, is met.

## SERVICE INFORMATION

A thorough preventive maintenance program is essential to safe and proper equipment operation. This manual contains maintenance schedules and procedures which should be followed for satisfactory equipment performance.

You are encouraged to contact STERIS concerning our comprehensive Preventive Maintenance Agreement. Under the terms of this agreement, preventive maintenance, adjustments, and replacements of worn parts are done on a scheduled basis to assure equipment performance at peak capability and to help avoid untimely or costly interruptions. STERIS maintains a worldwide staff of well-equipped, factory-trained technicians to provide this service, as well as expert repair services. Please contact your STERIS representative for details.

| CYCLES    | RECOMMENDED LOAD                                                                                                                                                                                               | STERILIZE TEMP.                                             | STERILIZE TIME | RECOMMENDED DRY TIME   |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|----------------|------------------------|
| Unwrapped | Unwrapped instrument tray with a single instrument (no lumens and no dental handpieces).                                                                                                                       | Domestic<br>270°F (132°C)<br>International<br>273°F (134°C) | 3 minutes      | 0 minutes              |
| Wrapped   | Wrapped instrument pack: one pack, maximum weight 2.87 lbs (1,300 g). Paper-peel pouches: maximum 5 pouches, one instrument per pack total maximum weight 1.1 lb (500 g) (no lumens and no dental handpieces). | Domestic<br>270°F (132°C)<br>International<br>273°F (134°C) | 10 minutes     | 45 minutes             |
| Liquid    | Vented borosilicate glass (500 mL or smaller).                                                                                                                                                                 | 250°F (121°C)                                               | 40 minutes     | 10 minutes (cool time) |
| Packed    | Fabric pack(s): maximum weight 2.32 lbs (1,050 g).                                                                                                                                                             | 250°F (121°C)                                               | 30 minutes     | 30 minutes             |

## **CE** EC Authorized Representative

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|                                                                  |                                                |
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The base language of this document is  
**ENGLISH**. Any translations must be made  
from the base language document.

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# Section 1: Listing of Warnings and Cautions

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The following is a listing of safety precautions which must be observed when operating or servicing this equipment. WARNINGS indicate the potential for danger to personnel, and CAUTIONS indicate the potential for damage to the equipment. These precautions are repeated (in whole or in part), where applicable throughout the manual.

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## WARNING - BURN HAZARD:

-  This sterilizer is not designed to process flammable liquids.
  -  To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading, performing maintenance, or cleaning.
  -  Sterilizer and trays will be hot after cycle is run. Always wear protective gloves and apron when removing a processed load. Protective gloves and apron should also be worn when reloading sterilizer following previous operation.
  -  Beware of steam escaping from safety valve. To prevent burns, wear gloves or use an extension device if it becomes necessary to operate the pull ring.
- 

## WARNING - PERSONAL INJURY HAZARD:

-  Use only vented closures - do not use screw caps or rubber stoppers with crimped seals.
-  Use only Type 1 borosilicate glass bottles - do not use ordinary glass jugs or any container not designed for sterilization.
-  Open door slowly at the end of a liquid sterilization cycle. Do not allow hot bottles to be jolted. This can cause bottle explosions! Do not move bottles if any boiling or bubbling is present.
-  Allow bottles to cool to the touch before attempting to move them from sterilizer shelf or tray(s) to the storage area.
-  Repairs and adjustments to this equipment must be made by fully qualified personnel. Nonroutine maintenance performed by inexperienced, unqualified personnel or installation of unauthorized parts could cause personal injury, invalidate the warranty, or result in costly damage. Contact STERIS Engineering Service regarding service options.
-  Disconnect power to sterilizer and allow sterilizer to cool to room temperature before performing any maintenance procedure.
-  Always use two persons when lifting/moving unit to prevent personal injury or equipment damage.
-  Do not overfill reservoir. To avoid slippery conditions and possible load contamination, immediately wipe up all spillage resulting from overfilling reservoir. (Reservoir overflow tube exits on back of unit.)
-  To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.
-  Proper functioning of the "Door Latched" sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting a cycle. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.

## WARNING - PERSONAL INJURY HAZARD (CONTINUED):



When performing adjustments, use only an insulated screwdriver. Also, ensure metal of screwdriver does not come in contact with any grounded surface.

---

## WARNING - FALL HAZARD:



To prevent falls, keep floors dry by immediately wiping up any spilled liquids or condensation in sterilizer loading or unloading area.

---

## WARNING - FIRE HAZARD:



When sterilizing wrapped goods, do not allow pouches or wraps to touch chamber wall.

---

## WARNING - EXPLOSION HAZARD:



Do not operate this sterilizer in the presence of flammable compounds.

---

## WARNING - STERILITY ASSURANCE HAZARD:



The "Unwrapped" cycle is intended to process only an unwrapped instrument tray with a single instrument (No Lumens).



The sterilizer is not designed to process dental handpieces or lumens.



It is inappropriate to sterilize liquids intended for direct patient contact.



STERIS Ten Sixteen Plus (1016+) and Amsco Eagle Ten +: The cycles listed in Tables 3A-1, 3A-2, 3C-1, and 3C-2 have been validated. If different cycle parameters are required, it is the responsibility of the health care facility to validate the cycle to assure that the proper sterility assurance (SAL), as well as drying efficiency, is met.

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## CAUTION - POSSIBLE EQUIPMENT DAMAGE:



Never use wire brushes, abrasives, steel wool, solvents, hydrocarbon products, or chloride products to clean door, chamber, and gaskets.



If media is processed, bottles and tubes should contain no more than 1/2 the total volume of the container. When processing water bottles and test tubes, the bottles and tubes should contain no more than 3/4 the total volume of the container. Chamber, filter, and water level probe should be cleaned daily when processing media.



To avoid equipment damage, use de-ionized or distilled water **ONLY** for filling reservoir and cleaning.



Do not clean with solvents or any products containing hydrocarbons.



Sterilization of chloride-containing solutions can cause chamber corrosion and is not recommended by the manufacturer. However, if chloride-containing solutions must be processed, clean the chamber, filter, and water level probe after each use.

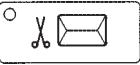


Do not remove or replace printed circuit boards unless facility power is off and electrostatic precautions are taken.



To avoid thermistor damage, when installing new thermistor, ensure that it does not touch outer cover.

## Definition of Symbols

| Symbol                                                                              | Definition                     | Symbol                                                                              | Definition                                       |
|-------------------------------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------|
|    | Condition                      |    | Gravity                                          |
|    | Sterilize                      |    | Liquids                                          |
|    | Exhaust                        |    | Reset                                            |
|    | Complete                       |    | Dry Time Set                                     |
|    | Warning Hot Liquids            |    | Up/Down Arrows                                   |
|    | On/Standby                     |    | Attention, Consult Manual for Further Assistance |
|    | Sterilizer Time Set            |    | Explosion Hazard                                 |
|    | Unwrapped                      |    | Transfer of Heat, Hot Surface                    |
|  | Wrapped                        |  | Dangerous Voltage                                |
|  | Packs                          |  | Protective Earth (Ground)                        |
|  | Sterilizer Temperature Set     | <b>A</b>                                                                            | Amperage Rating of the unit                      |
|  | ON (Except for the Generator)  | <b>V</b>                                                                            | Voltage Rating of the unit                       |
|  | Standby (Except for Generator) | <b>-</b>                                                                            | Alternating Current                              |
|  | Electrostatic Sensitive Device | <b>Hz</b>                                                                           | Frequency of the unit                            |
|                                                                                     |                                | <b>SN</b>                                                                           | Serial Number of the unit                        |

## **Section 2: General Information**

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### **2.0 APPLICATION AND DESIGN**

The product literature included in this section contains factual data relating to the principle characteristics of the STERIS Ten Sixteen (1016) and Ten Sixteen Plus (1016+) and the Amsco Eagle Ten and Eagle Ten + Tabletop Steam Sterilizers. The literature is informative rather than instructional. It provides and conveys, through text and illustrations, a general concept of the equipment, its purpose, limitations, and technical applications.

The following is included in this section: SD658 STERIS Ten Sixteen Tabletop Steam Sterilizer Tech Data.

### **2.1 TABLETOP STEAM STERILIZER MODELS**

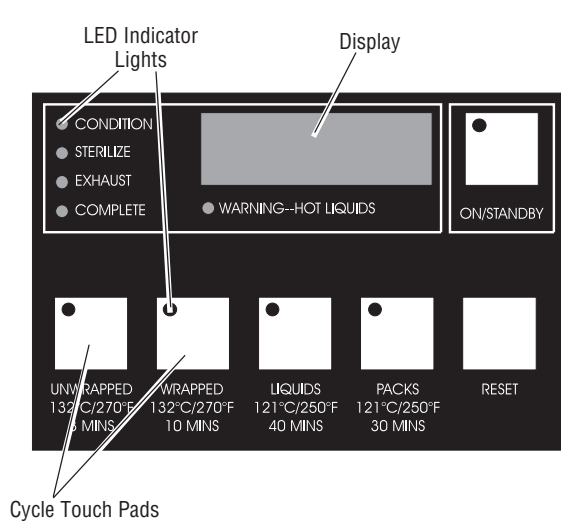
This manual contains information on the STERIS Ten Sixteen (1016) and Ten Sixteen Plus (1016+) and the Amsco Eagle Ten and Eagle Ten + Tabletop Steam Sterilizers. (The STERIS Ten Sixteen models are the current version of the Amsco Eagle Ten models.) Information is applicable to all units unless otherwise noted. All units with serial numbers after 1/1/00 will be labeled STERIS Ten Sixteen (1016) or Ten Sixteen Plus (1016+). Where information applies to more than one unit, the term "Tabletop Steam Sterilizers" will be used.

### **2.2 TECHNICAL SPECIFICATIONS**

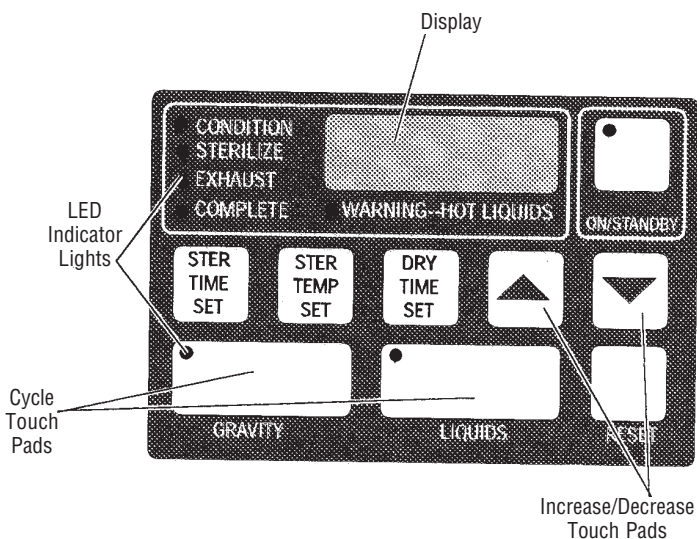
The product information included in Table 2-1 provides technical specifications.

**TABLE 2-1: Technical Specifications  
for STERIS Ten Sixteen (1016) and Ten Sixteen Plus (1016+)  
and Amsco Eagle Ten and Eagle Ten +**

|                                                                                                                                     |                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit Dimensions (W x H x D)                                                                                                         | 19-3/4 x 15-1/2 x 20-1/2" (502 x 394 x 521 mm)                                                                                                                                                                                                                                            |
| Chamber Dimensions                                                                                                                  | 10" dia. x 16" long (254 mm dia. x 406 mm long)                                                                                                                                                                                                                                           |
| Weight                                                                                                                              | Approximately 80 lbs (36.3 kg)                                                                                                                                                                                                                                                            |
| Utility Requirements<br>Electric<br><br>Water                                                                                       | 120 VAC, 50/60 Hz, single phase, 12.5 Amps (dedicated)<br>220/240 VAC, 50/60 Hz, single phase, 7 Amps (dedicated)<br>Distilled or deionized water ONLY (with a minimum resistivity of 1 megohm/cm)                                                                                        |
| Mounting                                                                                                                            | Countertop                                                                                                                                                                                                                                                                                |
| Construction<br>Shell<br>Door<br>Insulation                                                                                         | 304 SS<br>Aluminum<br>Glass Fiber                                                                                                                                                                                                                                                         |
| Reservoir                                                                                                                           | 1-gallon (3.8-L) capacity                                                                                                                                                                                                                                                                 |
| Environmental Conditions<br>Temperature<br>Humidity<br>Pollution Degree<br>Validated per AAMI ST-55<br><br>Validated per AAMI ST-37 | 41°F (5°C) to 104°F (40°C)<br>85 percent<br>2<br>270°F Wrapped (domestic); 134°C Wrapped (international)<br>250°F Packs (domestic); 121°C Packs (international)<br>250°F Liquids (domestic); 121°C Liquids (international)<br>270°F Unwrapped (domestic); 134°C Unwrapped (international) |
| Temperature Control<br>Ten Sixteen, Eagle Ten<br>Ten Sixteen Plus, Eagle Ten +                                                      | Preset<br>Adjustable from 194°F (90°C) to 275°F (135°C)<br>Adjustable from 194°F (90°C) to 255°F (124°C)                                                                                                                                                                                  |
| Exposure Time<br>Ten Sixteen, Eagle Ten<br>Ten Sixteen Plus, Eagle Ten +                                                            | Preset<br>Adjustable from 0 to 99 minutes                                                                                                                                                                                                                                                 |
| Overtemperature Output                                                                                                              | 400°F (204°C)                                                                                                                                                                                                                                                                             |
| Waste Disposal Products                                                                                                             | Printer Paper - disposable<br>Entire Sterilizer (end of life) - Contact STERIS for disposal or recycling recommendations.                                                                                                                                                                 |



**STERIS Ten Sixteen (1016)  
and Eagle Ten Control Panel**



**STERIS Ten Sixteen Plus (1016+)  
and Eagle Ten + Control Panel**

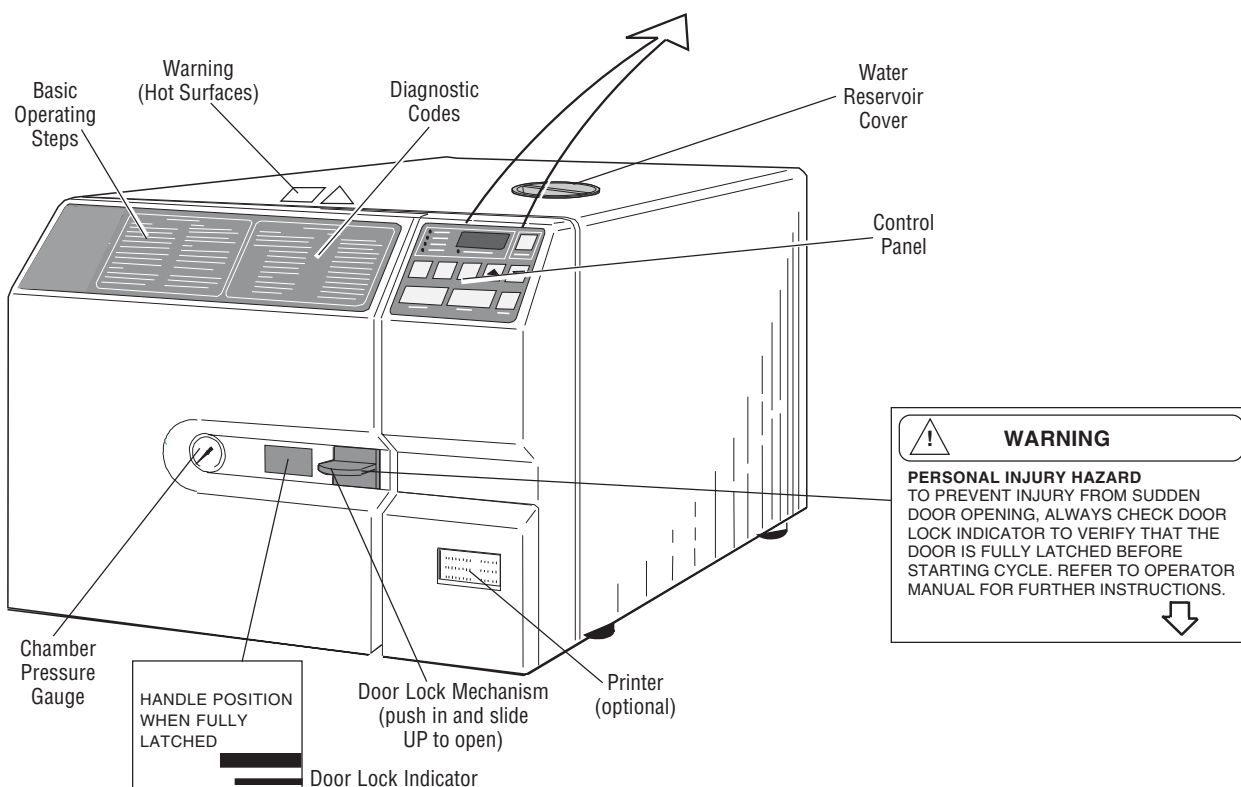
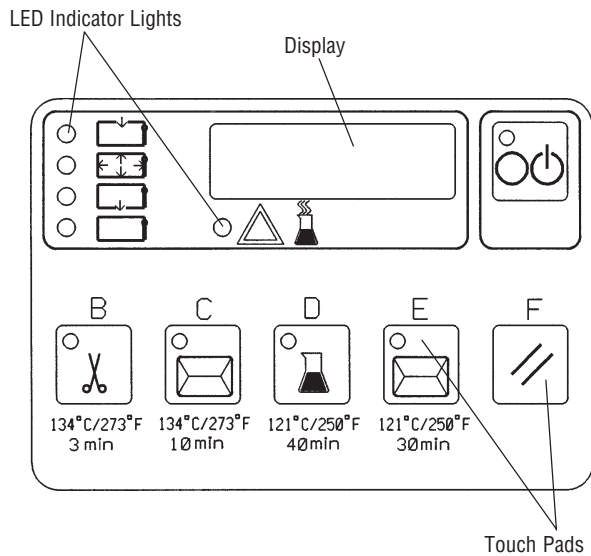
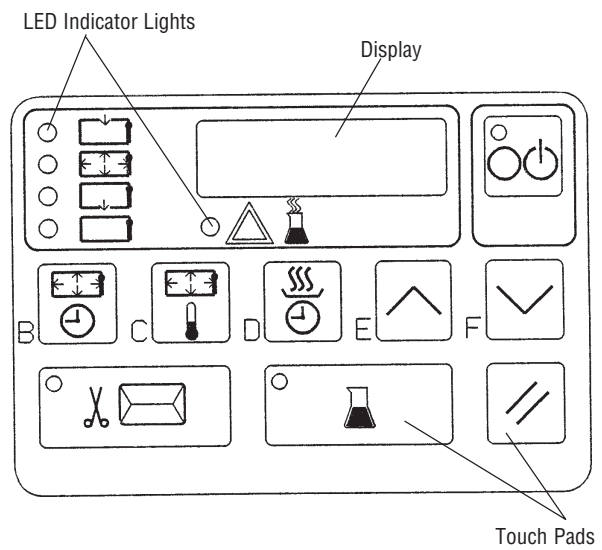


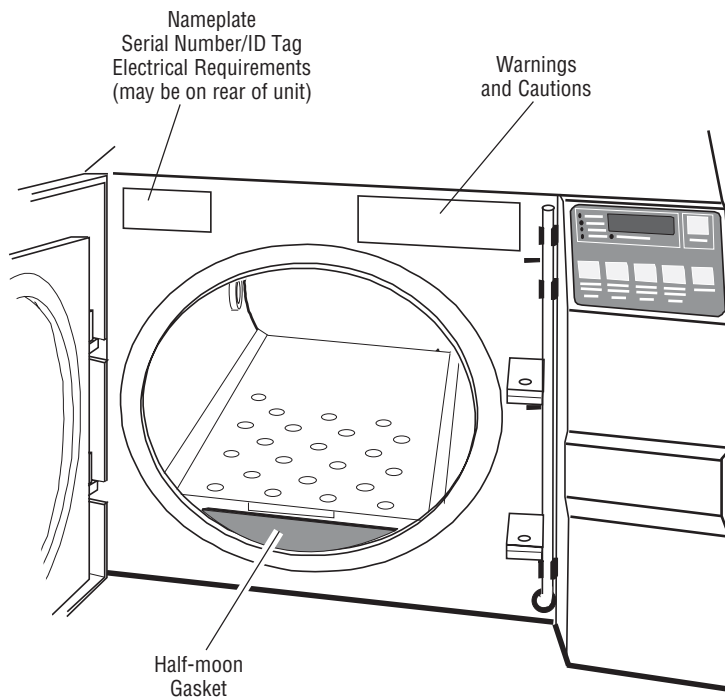
**Figure 2-1  
STERIS Ten Sixteen (1016) and Ten Sixteen Plus (1016+), Eagle Ten and Eagle Ten +  
Tabletop Steam Sterilizer**



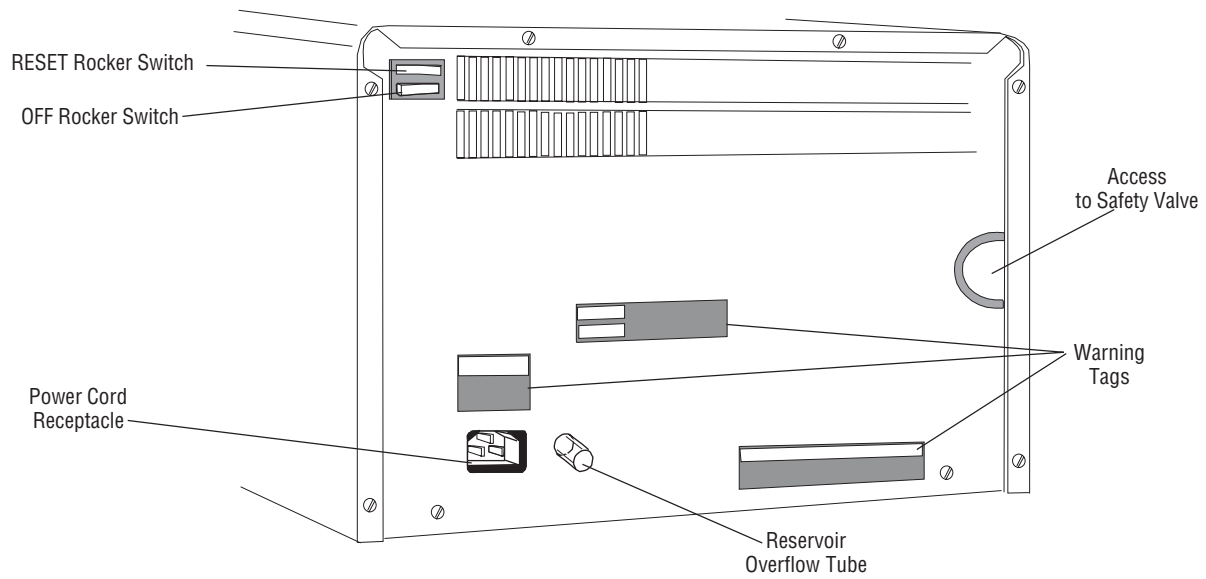
**STERIS Ten Sixteen (1016)  
Control Panel (International)**



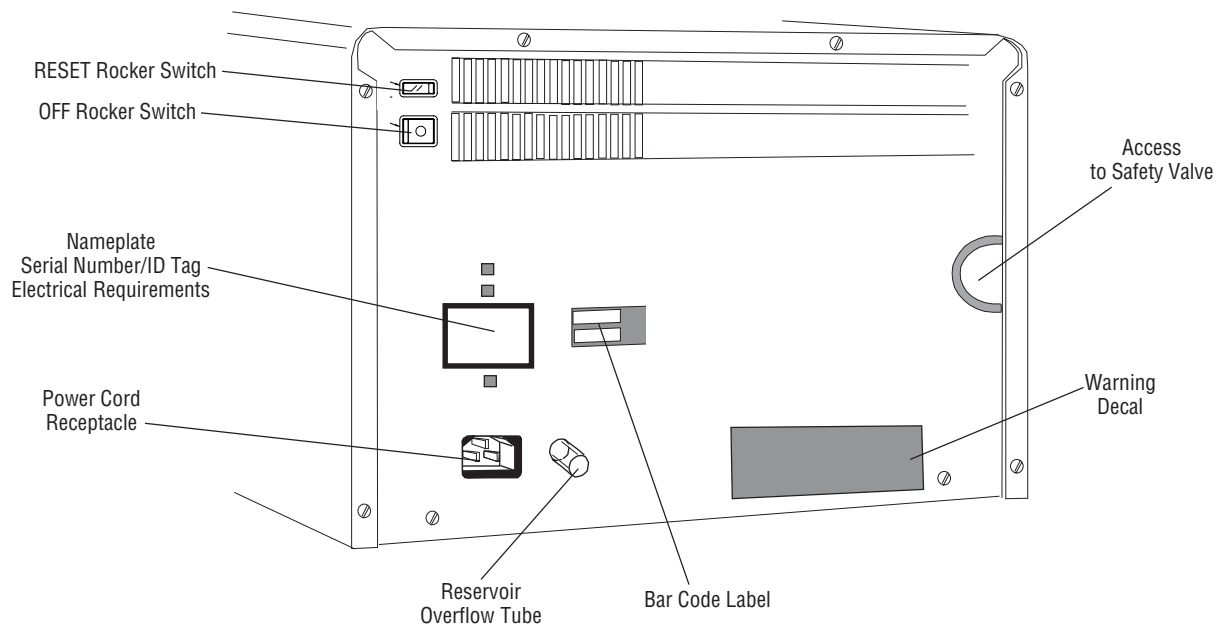
**STERIS Ten Sixteen Plus (1016+)  
Control Panel (International)**



**View with Door Open**



**Rear View (before 01/01/00)**



**Rear View (after 01/01/00)**

## Section 3: Operating Instructions

### STERIS Ten Sixteen (1016) and Amsco Eagle Ten (Domestic)

#### 3.0 GENERAL

The following procedures are intended to guide maintenance personnel when:

- (1) instructing operators in techniques designed to ensure optimum equipment performance; and
- (2) verifying the validity of operator complaints.

As a reminder for operators, a simplified version of the operating instructions can be found on a permanent plate mounted on the front panel of the unit. New operators should always use the supplied Operator Manual.

See the Troubleshooting and Error Code Charts (Section 5) and Functional Description (Section 4) if this unit is not operating properly. Refer to Section 2, General Information, for capabilities of the unit.

#### 3.1 FEATURES

This section provides a brief description of the major features found on the STERIS Tabletop Steam Sterilizers.

##### 3.1.1 Control Panel (Figure 3-1)

The Control Panel features six touch-sensitive pads which control the functions of the STERIS Tabletop Steam Sterilizer and an electroluminescent display area. Brief descriptions of each touch key and the display area follow:

**! WARNING - STERILITY ASSURANCE HAZARD: It is inappropriate to sterilize liquids intended for direct patient contact.**

- **ON/STANDBY** - pressing this touch pad places the unit in the ON (indicator light illuminated) or STANDBY (indicator light not illuminated) mode. When not in use, the unit should be in the STANDBY mode.
- **UNWRAPPED** - pressing this touch pad starts the sterilization cycle for unwrapped products. See "Operating Instructions" for more information.
- **WRAPPED** - pressing this touch pad starts the sterilization cycle for wrapped products. See "Operating Instructions" for more information.

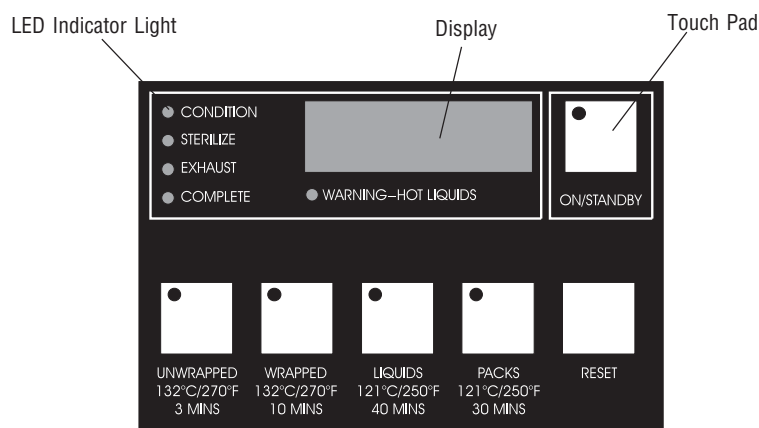


**Figure 3-1**  
**Control Panel**

- **LIQUIDS** - pressing this touch pad starts the sterilization cycle for liquid products. See "Operating Instructions" for more information.
- **PACKS** - pressing this touch pad starts the sterilization cycle for packed products. See "Operating Instructions" for more information.
- **RESET** - pressing this touch pad during a cycle will abort the cycle. Pressing this touch pad when not in a cycle will return the control program to its original wait state.
- **Display Area** - this area features an electroluminescent display for the presentation of all alphanumeric messages (i.e., error codes, times, date).
- **CONDITION, STERILIZE, EXHAUST, COMPLETE, WARNING - HOT LIQUIDS** - these areas all have corresponding indicator lights which inform the operator of the state of a given cycle.

### 3.1.2 Operating Instructions and Diagnostic Codes Label (Figure 3-2)

This label features a brief outline of the operating instructions for the sterilizer and a list of all diagnostic codes which may be displayed on the control panel as the result of an abnormal condition.

### 3.1.3 Miscellaneous Features (Figure 3-3)

The STERIS Tabletop Steam Sterilizer features various safety and operating components on the rear and front panels of the unit. A brief list and description of these components follow:

- **RESET Rocker Switch** - pressing the RESET rocker switch enables AC Power to the unit (rear panel).
- **OFF Rocker Switch** - pressing the OFF rocker disables AC Power to the unit (rear panel).
- **Reservoir Overflow Tube** - releases any excess water from the reservoir to avoid overfilling (rear panel). An extension tube (not by STERIS) can be attached to the overflow tube and routed to a drain to prevent water from lying on the counter in the event of an overflow.
- **Safety Valve** - releases excess pressure from the sterilizer chamber (rear panel).
- **Chamber Pressure Gauge** - displays the current pressure inside the chamber (0-60 psig). If this pressure gets too high, it is released through the safety valve (rear panel, see Figure 3-3).
- **Printer** (optional) - records all cycle data on 2-1/4" (5.72 cm) wide, single-ply thermal paper (see Figure 3-4). See Section 7.14 for paper ordering information and Section 5.1.4.4 for paper reloading information.

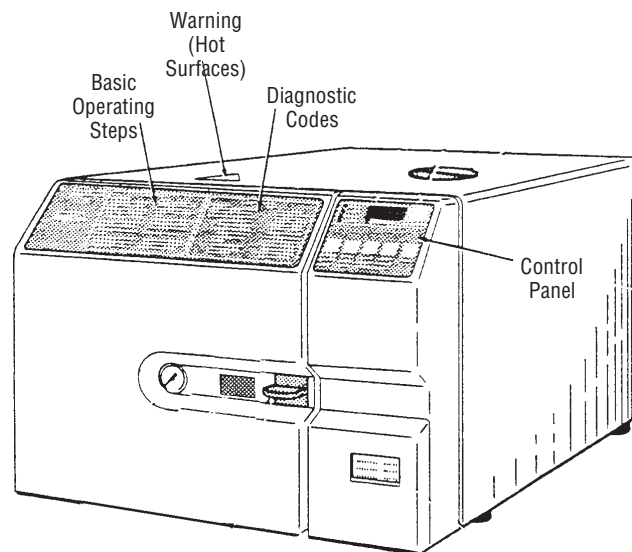


**Figure 3-2**  
**Operating Instructions and Diagnostic Codes Label Location**

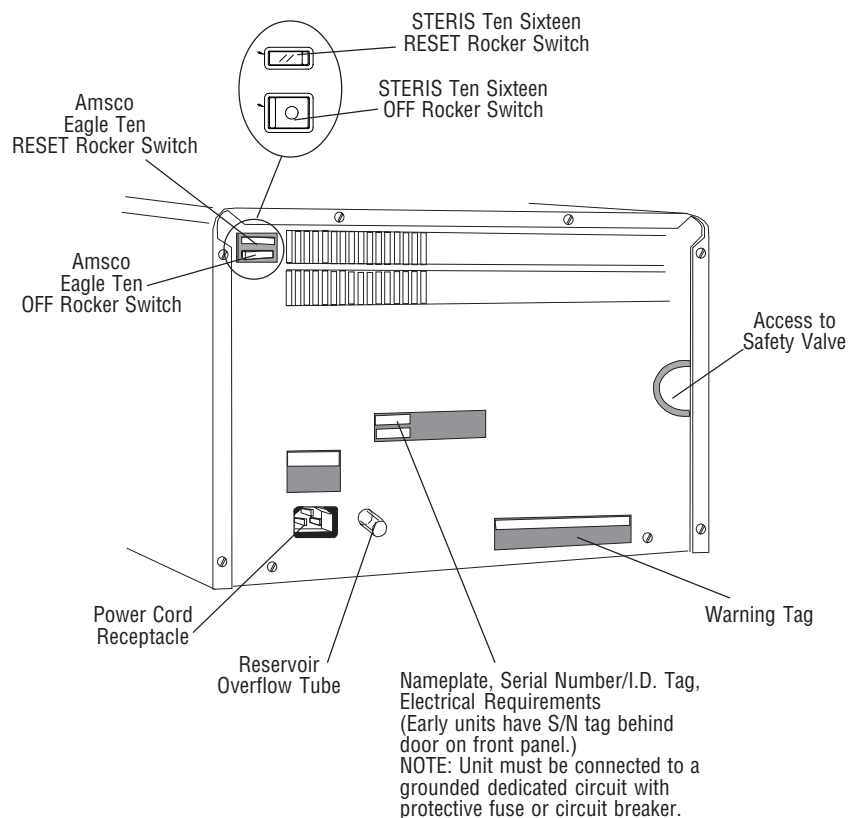


**Figure 3-3**  
**STERIS Tabletop Steam Sterilizer**  
**(Rear View)**

```
=====
===  U N W R A P P E D  ===
=====
CYCLE  START  AT  15:12:40
                                ON 5/29/00

CYCLE COUNT                      1547
OPERATOR  _____
STERILIZER  _____

STERILIZE TEMP                    270F
STERILIZE TIME                     3 min
DRY TIME                          60 min*

PHASE           TIME             TEMP
-----
Fill            15:12:53         155F
Condition       15:14:04         172F
Condition       15:16:55         212F
Sterilize       15:22:47         270F
Sterilize       15:23:47         271F
Sterilize       15:24:47         272F
Sterilize       15:25:48         272F
Exhaust         15:25:49         272F

+++++
OPEN DOOR 1/4" and WAIT
RECOMMENDED DRY TIME.
+++++

UNLOCKED  15:31:42      219F
Drying    15:31:43      219F
Complete  15:31:44      219F

MAX Temperature      272F
Min Temperature      270F

Condition Time        8:40
Sterilize Time        3:01
Exhaust Time          5:51
Dry Time              0:01
                      -----
TOTAL CYCLE          0:19:00

=====
=          READY TO UNLOAD          =
=    RESET FOR NEXT CYCLE    =
=====
```

**Figure 3-4**  
**Sample Printout**

\* The dry phase of the cycle may be terminated at any time during its 60-minute length by pressing ON/STANDBY. A tone sounds at 30, 45, and 60 minutes during the drying phase, prompting the operator to terminate drying, if desired. At the end of 60 minutes, the control signals the end of the cycle and displays "done."

## 3.2 PREPARING UNIT FOR INITIAL USE

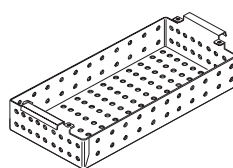
This 13-step procedure should be followed closely to ensure proper set up and operation of the sterilizer:

1. Open the sterilizer door (push handle in and slide upward) and remove all chamber contents (Figure 3-5):

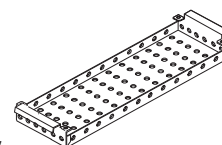
- ï trays
- ï fuses
- ï paper (units with printer)
- ï power cord

2. Unwrap the loading trays and power cord.

3. Carefully remove bottom shelf from inside the chamber and verify that the filter is connected to the fill port and is resting on the bottom of the chamber (Figure 3-6).



Large Tray  
(P-426637-278)  
9" (229 mm) W x 13-1/8" (333 mm) D x 2-1/2" (64 mm) H



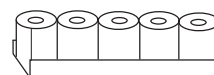
Small Tray  
(P-426637-277)  
6-1/2" (165 mm) W x 13-1/8" (333 mm) D x 1-5/8" (41 mm) H



Power Cord  
(P-093910-907, 120 Volt;  
P-400028-009, 220 Volt)



Fuses  
(P-020341-091, 1/2 Amp for 120V units;  
P-04588-091, 1/4 Amp for 240 V units)



Paper (units with printer)  
(P-129359-008)

**Figure 3-5  
Chamber Contents**

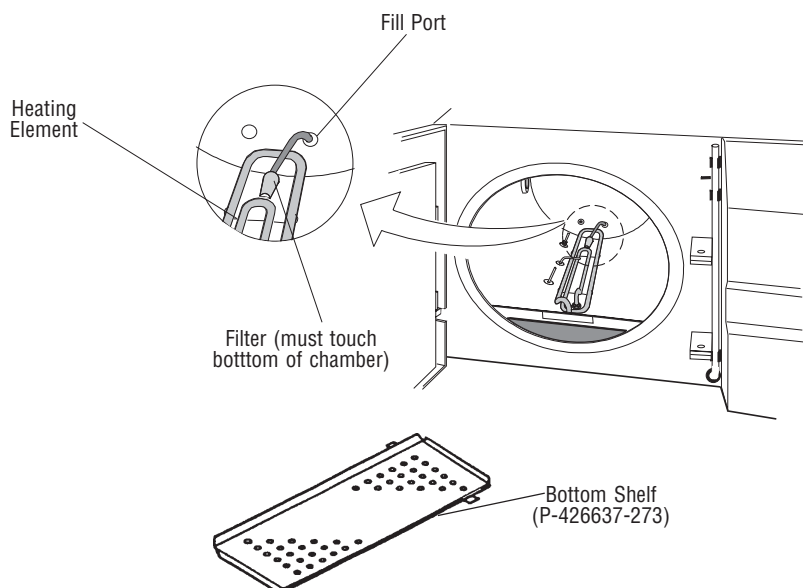


**Figure 3-6  
Filter Position**

**⚠ WARNING - PERSONAL INJURY HAZARD:**  
To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.

**⚠ WARNING - PERSONAL INJURY HAZARD:**  
Proper functioning of the "Door Latched" sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting a cycle. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.

4. Verify that the water level tube is in an upright position and secure in its holders (Figure 3-7 and Figure 3-8). Make sure that water level tube is not contacting or interfering with the "Door Latched" sensor lever arm.
5. Replace bottom shelf and make sure the front edge of the shelf is inserted into tab for shelf support (see Figure 3-7). Close and lock the chamber door (push handle in and slide downward).
6. Attach the female end of the power cord to the rear of the sterilizer (Figure 3-3).
7. Plug the male end of the power cord into a dedicated, properly grounded electric outlet of the voltage and current specified on the serial number /ID nameplate (located on inside front or back panel of sterilizer, see Figure 3-3).

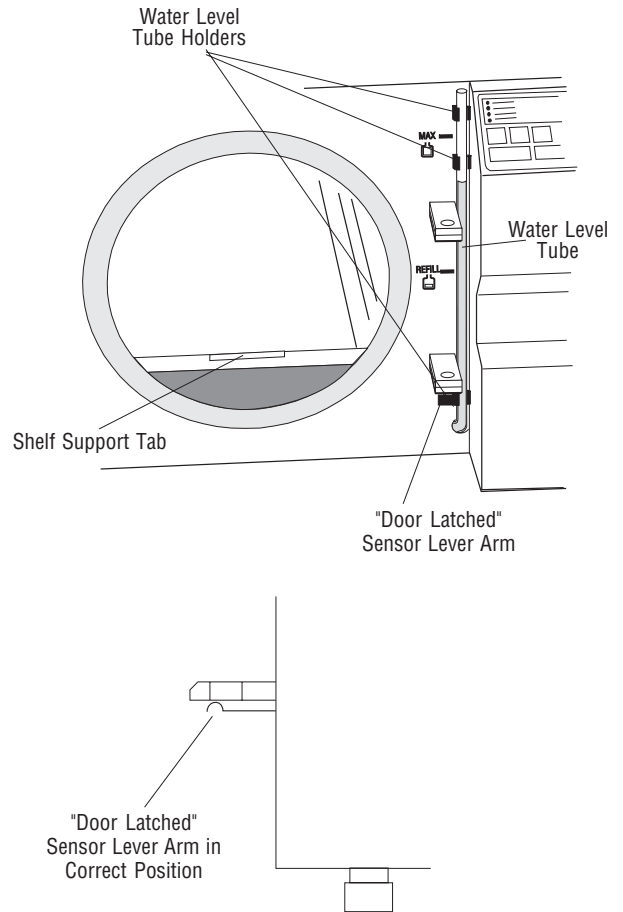


**Figure 3-7**  
**Water Level Tube and "Door Latched" Sensor**

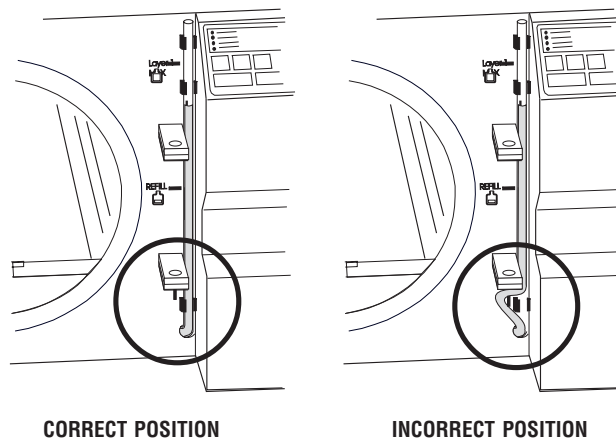


**Figure 3-8**  
**Water Level Tube Position**

8. Press the RESET rocker switch on the rear of the sterilizer (Figure 3-9). The front panel display will alternate between OFF and time of day (see Figure 3-10). The optional printer will print "POWER ON" (see Figure 3-11).
9. Press the ON/STANDBY touch pad and verify that the indicator light turns on and TIME is displayed (see Figure 3-12). The heaters will begin to cycle to preheat the chamber. The optional printer will print "CONTROL ON" (see Figure 3-11).
10. Set the correct time and date (see *Setting Temperature Units and Time/Date* in Section 5).

**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** To avoid equipment damage, use deionized or distilled water **ONLY** for filling reservoir and cleaning.

**WARNING - PERSONAL INJURY HAZARD:** Do not overfill reservoir. To avoid slippery conditions and possible load contamination, immediately wipe up all spillage resulting from overfilling reservoir. (Reservoir overflow tube exits on back of unit.)

11. Remove the water reservoir cover (see Figure 2-1) and slowly fill reservoir with distilled or deionized water (minimum resistivity of 1 megohm/cm) until water level in the water level tube is between REFILL and MAX indicators (Figure 3-14). Reservoir capacity is approximately 1 gal (3.8 L). **DO NOT OVERFILL.** Replace the water reservoir cover.

*NOTE: Do not add water to reservoir when there is water in the chamber. This may cause an overflow situation during the next cycle.*

12. Verify that there are no Error Messages on the front panel display. If there are, consult Appendix A following Section 3C for corrective measures.
13. Press the ON/STANDBY touch pad and verify the indicator light is extinguished (see Figure 3-13). The sterilizer should remain in the STANDBY mode (indicator light off) when the unit is not in use.

*NOTE: Initial odor (from insulation) will disappear after approximately 24 hours use.*

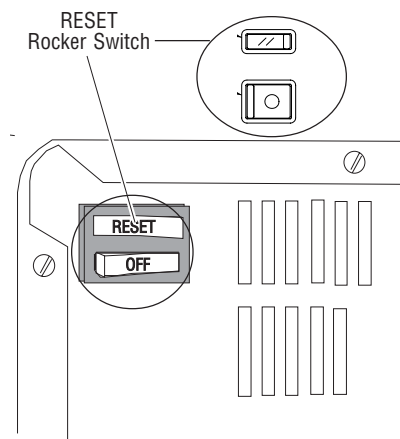


**Figure 3-9**  
Reset and Off Switches

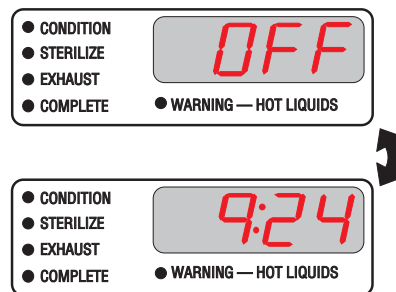


**Figure 3-10**  
Display

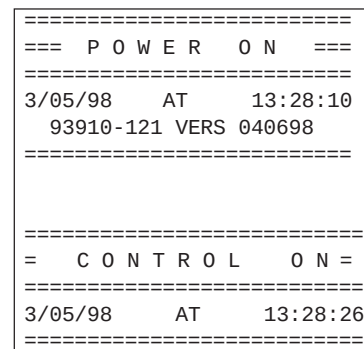


**Figure 3-11**  
Sample Printout

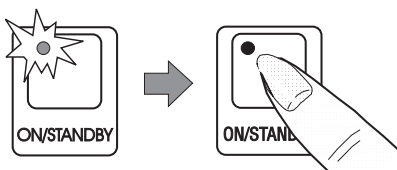


**Figure 3-13**  
ON/STANDBY



**Figure 3-12**  
ON/STANDBY

### 3.3 CONTROL MEASURES FOR VERIFYING STERILIZATION PROCESS

As part of the operator's verification of the sterilization process, biological indicators may be used to demonstrate that sterilization conditions have been met. The biological indicators used should consist of spores of *Bacillus stearothermophilus* that comply with the American National Standard, *Biological Indicators for saturated steam processes in health care facilities* (AAMI, 1986).

*NOTE: Contact STERIS for information on specific biological indicators recommended for use with this sterilizer.*

 **WARNING - STERILITY ASSURANCE HAZARD: The sterilizer is not designed to process dental handpieces.**

This sterilizer should be biologically monitored during initial installation, after any major repairs, and at least once a week (preferably daily) during normal use. Each type of sterilization cycle used should be monitored. Consult AAMI ST42, "Steam sterilization and sterility assurance in office-based, ambulatory-care medical and dental facilities" for details, including guidelines for loads containing implantable devices.

The biological test pack used for installation testing or biological monitoring should be representative of the type of package or tray that will routinely be processed in the sterilizer. Of the types of packs or trays most frequently processed in each cycle, the one considered to be the most difficult to sterilize should be selected as the test pack for that cycle. **When selecting challenge packs, you should consider multiple layers of dressing materials, large metal masses, and mixed packs incorporating both.** The pack or tray selected should contain the items normally present during routine sterilization, plus at least one biological indicator. At least one additional biological indicator from the same lot should be left unexposed to the sterilant and should be incubated and processed as a control.

The biological indicator test pack should be placed on its edge if it is a small pack or flat if it is a tray or large pack, and should be positioned in the center of the chamber, as close to the chamber door as possible. This is the "cold point" area of the chamber, which presents the greatest challenge to sterilization. The cycle being

tested can then be selected and started, after which the biological indicators are to be handled, processed, and interpreted according to the biological indicator manufacturer's instructions.

Reference ANSI/AAMI ST42-1992, "Steam sterilization and sterility assurance in office-based, ambulatory-care medical and dental facilities."

### 3.4 STERILIZING WRAPPED, UNWRAPPED, AND PACKED GOODS

 **WARNING - BURN HAZARD: Sterilizer and trays will be hot after cycle is run. Always wear protective gloves and apron when removing a processed load. Protective gloves and apron should also be worn when reloading sterilizer following previous operation.**

 **WARNING - FIRE HAZARD: When sterilizing wrapped goods, do not allow pouches or wraps to touch chamber wall.**

 **WARNING - PERSONAL INJURY HAZARD: To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.**

 **WARNING - PERSONAL INJURY HAZARD: Proper functioning of the "Door Latched" sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting cycle. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.**

**IMPORTANT:** Should an abnormal cycle condition occur, it will be displayed as indicated in Appendix A, Error Code Troubleshooting Chart.

*NOTE: Unwrapped goods are intended for immediate use following sterilization. Unwrapped items must not be stored for later use.*

### 3.4.1 Preuse Checkout Procedure

1. Prior to the first cycle of the day (be sure the chamber is not hot), wipe out the cooled chamber using a clean cloth with deionized or distilled water. Dry the chamber with a lint-free cloth. If the chamber needs cleaning, refer to Section 5 ("Daily").
2. Verify that the water reservoir is full (water level should be between REFILL and MAX indications on the water level tube, Figure 3-14). If needed, slowly add distilled or deionized water (minimum resistivity of 1 megohm/cm). Do not overfill. Replace the water reservoir cover.
3. Verify that the water level tube is in an upright position and secure in its holders. Make sure that water level tube is not contacting or interfering with the "Door Latched" sensor lever arm.
4. Verify that the "Door Latched" sensor lever arm is in the correct position and that the sensor is operating properly. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.
5. Without closing the chamber door, press the ON/STANDBY touch pad; verify that the indicator light is ON.

### 3.4.2 Preparation

1. Use freshly laundered 140 thread count muslin (or equivalent)\*. This helps prevent superheating and provides longer life of the articles.

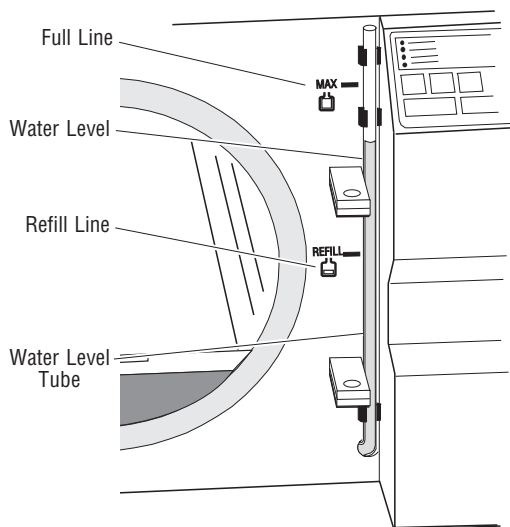


**Figure 3-14**  
**Filling Reservoir**

\* Muslin of 140 thread count is the present standard for steam sterilization. The manufacturers of other materials should show data that indicates their product is equivalent to the muslin profile in steam sterilization, drying, and sterility maintenance.

2. Limit the size and density of each muslin pack. This ensures complete steam permeation, and assists drying.



**WARNING - STERILITY ASSURANCE HAZARD:** The sterilizer is not designed to process dental handpieces.

3. Limit the size and density of wrapped instrument sets to assist in minimizing "wet pack" problems during post-sterilization.
4. Do not stack or nest utensils unless they are separated by muslin (or equivalent)\*.
5. Use two double-thickness 140 thread count muslin (or equivalent)\* wrappers for surgical supplies. This provides protection after sterilization.

### 3.4.3 Loading the Trays and Chamber

The following procedure must be followed closely when sterilizing wrapped, unwrapped, and packed goods.

*NOTE: When positioning the loading trays, the small tray must always be used under the large tray even if the large tray is the only one containing items to be sterilized.*



**WARNING - EXPLOSION:** Do not operate this sterilizer in the presence of flammable compounds.



**WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading or cleaning.



**WARNING - FALL HAZARD:** To prevent falls, keep floors dry by immediately wiping up any spilled liquids or condensation in sterilizer loading or unloading area.



**WARNING - STERILITY ASSURANCE HAZARD:** The sterilizer is not designed to process dental handpieces.



**WARNING - FIRE HAZARD:** When sterilizing wrapped goods, do not allow pouches or wraps to touch chamber wall.

1. Place items to be sterilized into the tray loosely to allow space for proper air removal and steam penetration throughout the load. Pay special attention to the following:
  - a. Place all fabric packs on edge and arrange packs for maximum steam exposure.
  - b. Place items that might entrap air or water, such as bowls or pitchers, upside down or on edge so they will be sterilized and dried properly (i.e., they will not "catch" water during the drying process).

- c. Place instrument sets, unwrapped or wrapped, flat in the tray.
  - d. Remove any caps from empty jars, canisters, and nonporous containers and place them upside down in the tray to facilitate sterilization and drying.
  - e. Place hard goods (i.e., metallic instruments) on the bottom when processing mixed loads combining fabrics and hard goods. This prevents wetting of wrapped packs from condensed water dripping from the hard goods load.
2. Carefully insert trays into the sterilizing chamber (Figure 3-15).
  3. Close and lock the chamber door. Verify the door is locked and ready for operation.

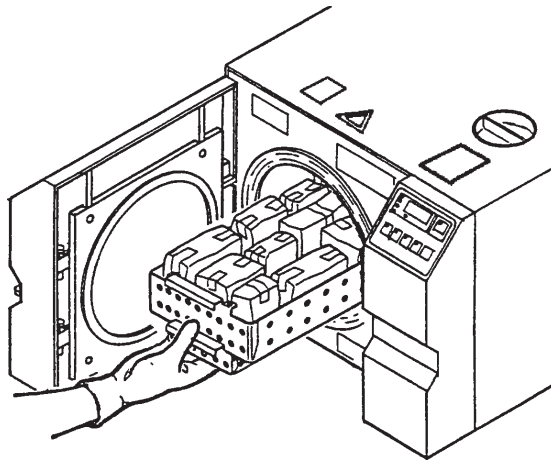


**Figure 3-15**  
Loading Sterilizer Chamber

### 3.4.4 Initiating a Sterilization Cycle (Nonliquids)

*NOTE: Pressing the RESET touch pad while a cycle is in progress will always abort the cycle. If a cycle is aborted, the load must be reprocessed.*

The following procedure is used to initiate a sterilization cycle for nonliquid goods. See Table 3-1 for pre-programmed times and temperatures for various load types and Figure 3-16 for touch pad locations.

1. After the door is closed, press the appropriate cycle touch pad (UNWRAPPED, WRAPPED, or PACKS). The corresponding indicator light illuminates. Display will read "FILL" (it takes 1 to 2 minutes to fill).
2. Next, the optional printer will print relevant data in the format shown in Figure 3-17.



**Figure 3-16**  
Control Panel

| CYCLES    | RECOMMENDED LOAD                                                                                                                                                                                               | STERILIZE TEMPERATURE | STERILIZE TIME | DRY TIME               |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------|------------------------|
| UNWRAPPED | Unwrapped Instrument tray with a single instrument (no lumens and no dental handpieces).                                                                                                                       | 270°F (132°C)         | 3 minutes      | 0 minutes              |
| WRAPPED   | Wrapped instrument pack: one pack, maximum weight 1300 g (2.87 lbs). Paper-peel pouches: maximum 5 pouches, one instrument per pack, total maximum weight 500 g (1.1 lb) (no lumens and no dental handpieces). | 270°F (132°C)         | 10 minutes     | 45 minutes             |
| LIQUID    | Vented borosilicate glass containers (500 mL or smaller).                                                                                                                                                      | 250°F (121°C)         | 40 minutes     | 10 minutes (Cool Time) |
| PACKED    | Fabric pack(s): maximum weight 1050 g (2.32 lbs).                                                                                                                                                              | 250°F (121°C)         | 30 minutes     | 30 minutes             |

**Table 3-1**  
Preprogrammed Sterilize Times and Temperatures with Recommended Dry Times

### 3.5 PHASES OF THE NONLIQUID STERILIZATION CYCLE

*NOTE: If the cycle does not start when the appropriate touch pad is pressed, consult Section 5.4, Troubleshooting and Error Code Charts.*

After successfully starting the cycle, the STERIS Ten Sixteen (1016) and Amsco Eagle Ten automatically begin the sterilization process (CONDITION, STERILIZE, EXHAUST, DRY, and COMPLETE phases).

Following is a brief description of each stage in this process:

#### 1. Condition

During the CONDITION phase, the CONDITION indicator light illuminates and the chamber heater turns on. The temperature is then displayed on the front panel display and rises until the preset sterilization temperature is reached.

- i If the chamber is cold, allow up to 30 minutes for chamber to reach sterilization temperature.
- ii If the chamber is hot, allow up to 20 minutes for chamber to reach sterilization temperature.

*NOTE: The sterilizer is programmed to reach a preset sterilization temperature of 250°F (121°C) or 270°F (132°C), depending on the cycle selected, within 20 minutes. If sterilization temperature is not reached during 20 minutes of conditioning, the control holds and waits 15 minutes for rise to temperature set point. If after the additional 15-minute wait time, the chamber temperature has not reached 250°F (121°C) or 270°F (132°C) depending on the cycle selected, the control aborts the cycle. If this occurs, see Section 4, "Troubleshooting."*

#### 2. Sterilize

The STERILIZE indicator light illuminates once the chamber attains the temperature specified through the program control (the timer then counts downward from the preset exposure time to zero). During the STERILIZE phase, temperature and time remaining in phase are displayed alternately on the front panel display once sterilization temperature is achieved (see Figure 3-18).

*NOTE: Temperature may rise 3°-5°F above the preset cycle temperature parameter.*

```
=====
==== W R A P P E D ====
=====
CYCLE START AT 7:36:52
                ON 6/02/98

CYCLE COUNT      1557
OPERATOR _____
STERILIZER  _____

STERILIZE TEMP    270F
STERILIZE TIME    10 min
DRY TIME          60 min*

PHASE      TIME    TEMP
-----
Fill      7:37:06 143F
-----
```

**Figure 3-17**  
**Sample Printout**

\* The dry phase of the cycle may be terminated at any time during its 60-minute length by pressing ON/STANDBY. A tone sounds at 30, 45, and 60 minutes during the drying phase, prompting the operator to terminate drying, if desired. At the end of 60 minutes, the control signals the end of the cycle and displays "doneE."

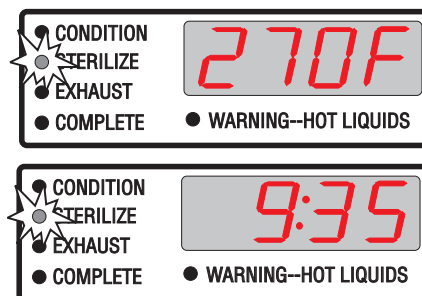


**Figure 3-18**  
**Sterilizer/Phase Display "STERILIZE"**

### 3. Exhaust

The EXHAUST indicator light illuminates once the sterilize phase is complete.

During the EXHAUST phase, the heater turns off, the chamber exhausts, and the chamber temperature is shown on the front panel display. The buzzer sounds for 4 seconds when EXHAUST is complete; "door" is shown on the front panel display and the buzzer sounds every minute until the door is opened (see Figure 3-19). Be sure chamber pressure is at zero prior to opening.

At the end of the EXHAUST phase, open the door (push in and lift the handle), then push the door in until it rests against the door-latching mechanism (DO NOT CLOSE DOOR) as pictured in Figure 3-20. The dry heaters will automatically turn on and begin DRY phase.

### 4. Dry

During the DRY phase, the phase time is shown on the front panel display (Figure 3-21) and counts upward (min:sec) for 60 minutes. A tone will sound at 30-, 45- and 60-minute intervals. The operator may terminate the DRY phase at any time by pressing the ON/STANDBY touch pad. When the touch pad is pressed, or 60 minutes has elapsed, "donE" appears in the front panel display indicating the cycle is complete.

### 5. Complete

Once the DRY phase is complete, the COMPLETE indicator light illuminates and "donE" appears in the front panel display. Pressing the RESET touch key completes the cycle and the time of day is shown in the front panel display (see Figure 3-22).

Finally, remove the tray containing the sterilized items from the chamber. **(Remember, protective gloves are necessary when removing items from the sterilizer, Figure 3-23.)**

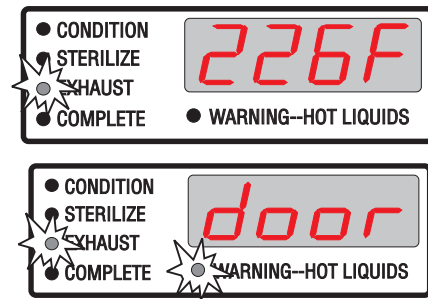


Figure 3-19  
Sterilizer/Phase Display "EXHAUST"

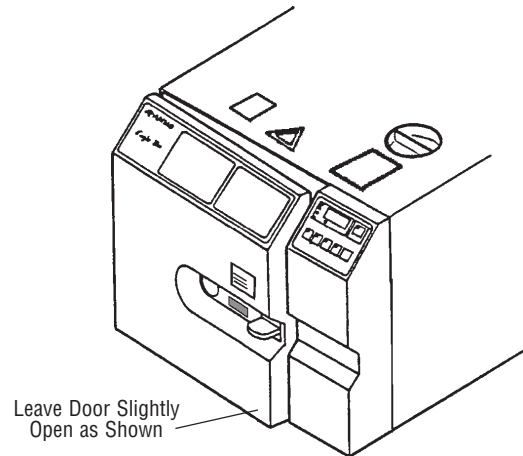


Figure 3-20  
Door Ajar Following Exhaust Phase



Figure 3-21  
Sterilizer "DRY" Phase Display

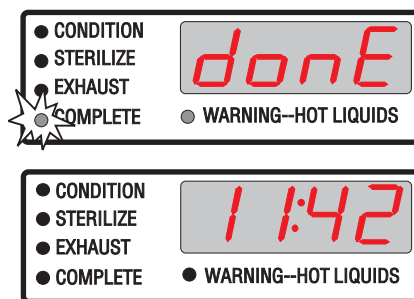


Figure 3-22  
Sterilizer "COMPLETE" Phase Display

Visually check outside of wrapper for dryness. A pack or instrument tray is unacceptable if there are water droplets or visible moisture on the exterior of the package or on the tape used to secure it.

Transfer to surface which is well padded with fabric to prevent condensation. Do not place on a cold surface. Be sure there is no air conditioning or cold air vents in close proximity.

Remove packs or instrument trays from padded surface when they have reached ambient (room) temperature.

The optional printer will print all information pertinent to the cycle (Figure 3-24) until the cycle ends.

*NOTE: A small puddle of water may be found on the counter when the door is opened at the end of the cycle. This puddling is due to condensation of steam on the door and gasket. Use a clean, absorbent cloth to immediately wipe up any water in or around the sterilizer after each cycle.*

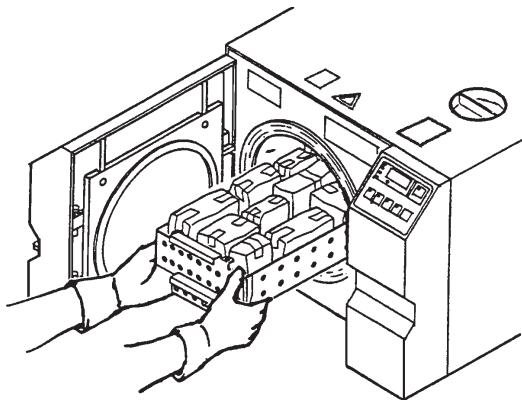


**Figure 3-23**  
Unloading Sterilizer

| PHASE                   | TIME     | TEMP |
|-------------------------|----------|------|
| Fill                    | 7:37:06  | 143F |
| Condition               | 7:37:37  | 129F |
| Condition               | 7:45:26  | 212F |
| Sterilize               | 7:51:28  | 271F |
| Sterilize               | 7:54:29  | 272F |
| Sterilize               | 7:57:30  | 272F |
| Sterilize               | 8:00:31  | 272F |
| Exhaust                 | 8:01:32  | 272F |
| +++++                   |          |      |
| OPEN DOOR 1/4" and WAIT |          |      |
| RECOMMENDED DRY TIME.   |          |      |
| +++++                   |          |      |
| UNLOCKED                | 9:15:51  | 129F |
| Drying                  | 9:15:51  | 129F |
| Complete                | 10:01:10 | 180F |
|                         |          |      |
| MAX Temperature         | 272F     |      |
| Min Temperature         | 270F     |      |
| Condition Time          | 13:46    |      |
| Sterilize Time          | 10:01    |      |
| Exhaust Time            | 1:13:52  |      |
| Dry Time                | 45:02 *  |      |
| -----                   |          |      |
| TOTAL CYCLE             | 2:23:46  |      |

**Figure 3-24**  
Sample Printout

\* The dry phase of the cycle may be terminated at any time during its 60-minute length by pressing ON/STANDBY. A tone sounds at 30, 45, and 60 minutes during the drying phase, prompting the operator to terminate drying, if desired. At the end of 60 minutes, the control signals the end of the cycle and displays "doneE."

### 3.6 STERILIZING LIQUIDS

Liquid sterilization is accomplished by utilizing a specially designed sterilization cycle.

**IMPORTANT:** Should an abnormal cycle condition occur, it will be displayed as indicated in Appendix A, Error Code Troubleshooting Chart.

 **WARNING - BURN HAZARD:** This sterilizer is not designed to process flammable liquids.

 **WARNING - EXPLOSION HAZARD:** Do not operate this sterilizer in the presence of flammable compounds.

 **WARNING - BURN HAZARD:** Sterilizer and trays will be hot after cycle is run. Always wear protective gloves and apron when removing a processed load. Protective gloves and apron should also be worn when reloading sterilizer following previous operation.

 **WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading or cleaning.

 **WARNING - STERILITY ASSURANCE HAZARD:** It is inappropriate to sterilize liquids intended for direct patient contact.

 **WARNING - PERSONAL INJURY HAZARD:** Use only vented closures - do not use screw caps or rubber stoppers with crimped seals.

 **WARNING - PERSONAL INJURY HAZARD:** Use only Type I borosilicate glass bottles - do not use ordinary glass jugs or any container not designed for sterilization.

 **WARNING - PERSONAL INJURY HAZARD:** Open door slowly at the end of a liquid sterilization cycle. Do not allow hot bottles to be jolted. This can cause bottle explosions! Do not move bottles if any boiling or bubbling is present.

 **WARNING - PERSONAL INJURY HAZARD:** Allow bottles to cool to touch before attempting to move them from sterilizer shelf or tray(s) to the storage area.

 **WARNING - PERSONAL INJURY HAZARD:** To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.

 **WARNING - PERSONAL INJURY HAZARD:** Proper functioning of the "Door Latched" sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting a cycle. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.

 **CAUTION - POSSIBLE EQUIPMENT DAMAGE:** If media is processed, bottles and tubes should contain no more than 1/2 the total volume of the container. When processing water bottles and test tubes, the bottles and tubes should contain no more than 3/4 the total volume of the container. Chamber, filter, and water level probe should be cleaned daily when processing media.

 **CAUTION - POSSIBLE EQUIPMENT DAMAGE:** Sterilization of chloride-containing solutions can cause chamber corrosion and is not recommended by the manufacturer. However, if chloride-containing solutions must be processed, clean the chamber, filter, and water level probe after each use.

### 3.6.1 Preuse Checkout Procedure

**⚠ WARNING - PERSONAL INJURY HAZARD:** Proper functioning of the "Door Latched" sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting a cycle. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.

**⚠ WARNING - PERSONAL INJURY HAZARD:** Do not overfill reservoir. To avoid slippery conditions and possible load contamination, immediately wipe up all spillage resulting from overfilling reservoir. (Reservoir overflow tube exits on back of unit.)

**⚠ WARNING - PERSONAL INJURY HAZARD:** To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.

1. Prior to the first cycle of the day (be sure the chamber is not hot), wipe out the cooled chamber using a clean cloth with deionized or distilled water. Dry the chamber with a lint-free cloth. If the chamber needs cleaning, refer to Section 5, ("Daily").
2. Verify that the water reservoir is full (water level should be between REFILL and MAX indications on the water level tube, Figure 3-14). If needed, slowly add distilled or deionized water (minimum resistivity of 1 megohm/cm). Do not overfill. Replace the water reservoir cover.
3. Verify that the water level tube is in an upright position and secure in its holders. Make sure that water level tube is not contacting or interfering with the "Door Latched" sensor lever arm.
4. Verify that the "Door Latched" sensor lever arm is in the correct position and that the sensor is operating

properly. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.

5. Without closing the chamber door, press the ON/STANDBY touch pad; verify that the indicator light is ON.

### 3.6.2 Loading the Tray and Chamber

The following procedure must be followed precisely when sterilizing liquids.

*NOTE: When positioning the loading trays, the small tray must always be used under the large tray even if the large tray is the only one containing items to be sterilized.*

**⚠ WARNING - STERILITY ASSURANCE HAZARD:** It is inappropriate to sterilize liquids intended for direct patient contact.

1. Place items to be sterilized into tray allowing space for proper air removal and steam circulation between items (Figure 3-25). Only use Type 1 borosilicate glass containers (Figure 3-26). Do not squeeze bottles against each other and do not overload the trays.
2. Carefully insert trays into the sterilizing chamber.
3. Close and lock the chamber door.

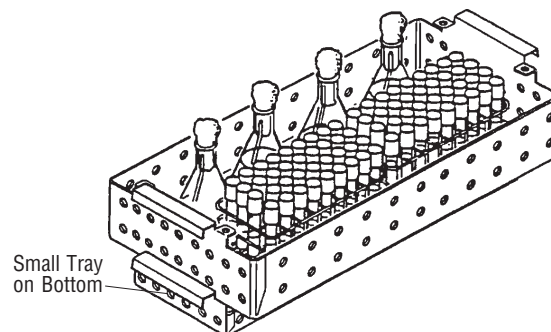


**Figure 3-25**  
**Loading Trays - Liquid Cycle**

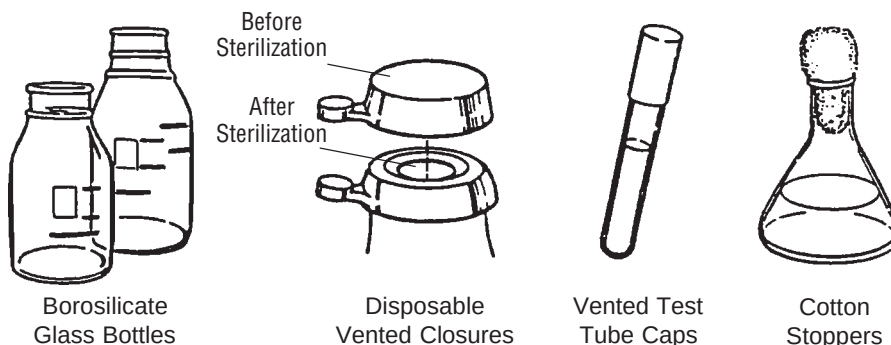


**Figure 3-26**  
**Proper Liquid Containers and Vented Closures**

### 3.6.3 Initiating a Sterilization Cycle (Liquid)

**NOTE:** Pressing the RESET touch pad while a cycle is in progress will always abort the cycle. If a cycle is aborted, the load must be reprocessed.

The following procedure is used to initiate a sterilization cycle for liquid goods. See Table 3-2 for preprogrammed time and temperature. See Figure 3-16 for touch pad locations.

1. After the door is closed, press the appropriate cycle touch pad (LIQUID). The corresponding indicator light illuminates. Display will read "FILL" (it takes 1 to 2 minutes to fill) as shown in Figure 3-27.
2. Next, the optional printer will print relevant data in the format shown in Figure 3-28.



Figure 3-27  
Display "FILL"

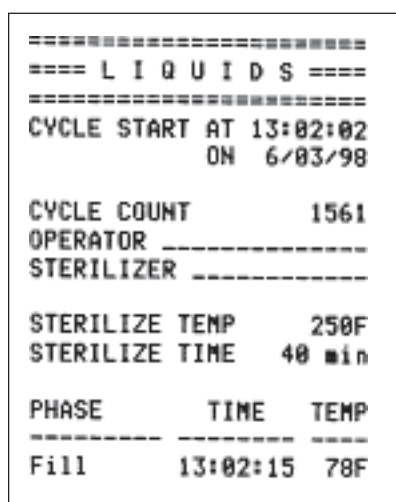


Figure 3-28  
Sample Printout

### 3.7 PHASES OF THE LIQUID CYCLE

**NOTE:** If the cycle does not start when the appropriate touch pad is pressed, consult Appendix A, "Troubleshooting."

After successfully starting the cycle, the STERIS Tabletop Steam Sterilizer automatically begins the sterilization process (CONDITION, STERILIZE, EXHAUST, COOL, and COMPLETE phases).

A brief description of each stage in this process follows:

#### 1. Condition

During the CONDITION phase, the CONDITION and WARNING-HOT LIQUIDS indicator lights illuminate and the chamber heater turns on. The temperature is then displayed on the front panel display and rises until the preset sterilization temperature is reached (see Figure 3-29).

- i If the chamber is cold, allow up to 30 minutes for chamber to reach sterilization temperature.
- i If the chamber is hot, allow up to 20 minutes for chamber to reach sterilization temperature.

**NOTE:** The sterilizer is programmed to reach a preset sterilization temperature of 250°F (121°C) or 270°F (132°C), depending on the cycle selected, within 20 minutes. If sterilization temperature is not reached during 20 minutes of conditioning, the control holds and waits 15 minutes for rise to temperature set point. If after the additional 15-minute wait time, the chamber temperature has not reached 250°F (121°C) or 270°F (132°C), depending on the cycle selected, the control aborts the cycle. If this occurs, see Section 4, "Troubleshooting."

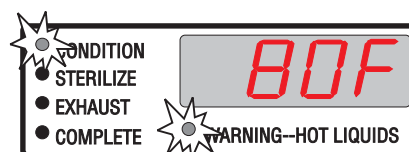


Figure 3-29  
Sterilizer "CONDITION" Phase Display

| FLASK SIZE        | STERILIZE CYCLE SETTINGS |               |                          |                             |
|-------------------|--------------------------|---------------|--------------------------|-----------------------------|
|                   | EXPOSURE TIME (minutes)  | TEMPERATURE   | MINIMUM* PRESSURE (psig) | RECOMMENDED DRY TIME (min.) |
| 500 mL or smaller | 40                       | 250°F (121°C) | 15                       | 10 (cool time)              |

\* This pressure reading is the minimum necessary to achieve sterility. Actual readings may be higher.

**Table 3-2**  
Preprogrammed Exposure Time and Temperature Setting - Liquid Cycle

## 2. Sterilize

The STERILIZE indicator light illuminates once the chamber attains the temperature specified through the program control (the timer then counts downward from the preset exposure time to zero). During the STERILIZE phase, temperature and time remaining in phase are displayed alternately on the front panel display once sterilization temperature is achieved (see Figure 3-30).

*NOTE: Temperature may rise 3°-5°F above preset cycle temperature parameter.*

## 3. Exhaust

The EXHAUST indicator light illuminates once the sterilizer phase is completed. During the EXHAUST phase, the heater turns off, the chamber exhausts, and the chamber temperature is shown on the front panel display.

The buzzer sounds for 4 seconds when EXHAUST is complete; "door" is shown on the front panel display and the buzzer sounds every minute until the door is opened. Be sure chamber pressure is at zero prior to opening (see Figure 3-31).

Open the door (push in and lift the handle), then push the door in until it rests against the door-latching mechanism (DO NOT CLOSE DOOR) as pictured in Figure 3-20.

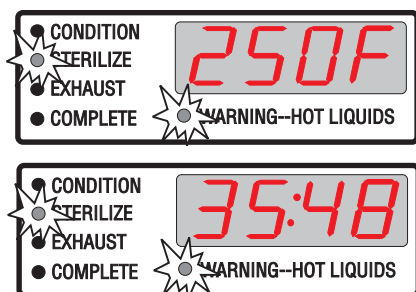


Figure 3-30  
Sterilizer "STERILIZE" Phase Display

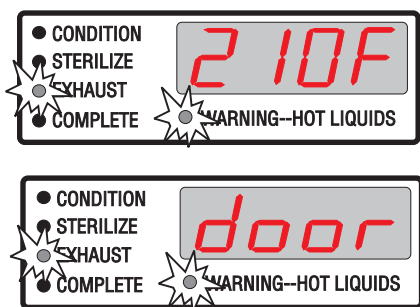


Figure 3-31  
Sterilizer "EXHAUST" Phase Display

## 4. Cool

During the COOL phase, the phase time is shown on the front panel display and counts upward (10 min.) until the COOL time automatically specified by program control is achieved (see Figure 3-32).

## 5. Complete

Once the COOL phase is complete, the COMPLETE indicator light illuminates and "donE" appears in the front panel display (see Figure 3-33). Pressing the RESET touch key completes the cycle and the time of day is shown in the front panel display.

**WARNING - STERILITY ASSURANCE HAZARD: It is inappropriate to sterilize liquids intended for direct patient contact.**

Finally, remove the trays containing sterilized items from the chamber (remember, protective gloves and a face mask are necessary when removing items from the sterilizer, Figure 3-34).



Figure 3-32  
Sterilizer "COOL" Phase Display

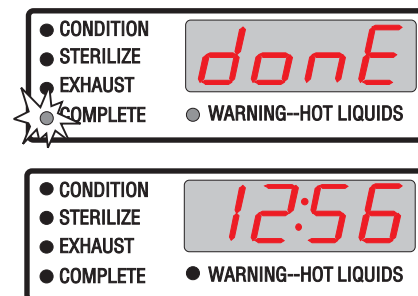


Figure 3-33  
Sterilizer "COMPLETE" Phase

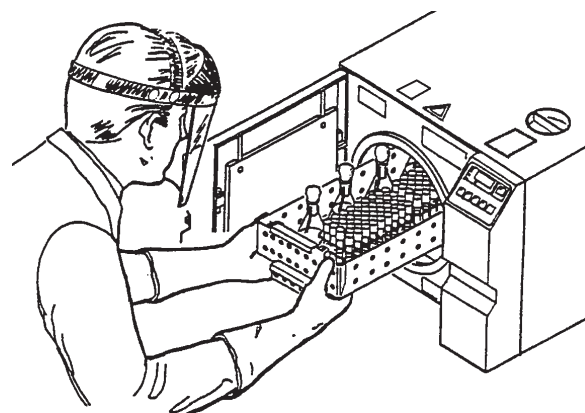


Figure 3-34  
Unloading Liquids

The optional printer will print all information pertinent to the cycle, as shown in Figure 3-35, until the cycle is complete.

*NOTE: A small puddle of water may be found on the counter when the door is opened at the end of the cycle. This puddling is due to condensation of steam on the door and gasket. Use a clean, absorbent cloth to immediately wipe up any water in or around the sterilizer after each cycle.*

### 3.8 LIQUID/MEDIA LOSS

**CAUTION-POSSIBLE EQUIPMENT DAMAGE:**  
**If media is processed, bottles and tubes should contain no more than 1/2 the total volume of the container. When processing water bottles and test tubes, the bottles and tubes should contain no more than 3/4 the total volume of the container. Chamber, filter, and water level probe should be cleaned daily when processing media.**

Certain biological media may boil more vigorously during slow exhaust because of vented closure being used, and/or ratio of liquid to volume of media container. If excessive liquid/media loss or if media spills are discovered in the bottom of chamber, proceed as follows:

1. Verify that media containers are not overly full. If uncertain about volume of media recommended per container, contact a STERIS Customer Account Representative.
2. Use appropriate vented closure for media being processed.
3. Certain liquid/media processes may require extended exhaust rates beyond standard EXHAUST phase. For additional information, contact a STERIS Customer Account Representative.

*NOTE: Chamber, filter, and water level probe should be cleaned daily when processing media. See Section 5 for cleaning instructions.*

|                            |          |         |
|----------------------------|----------|---------|
| STERILIZE TEMP             | 250F     |         |
| STERILIZE TIME             | 48 min   |         |
| PHASE                      | TIME     | TEMP    |
| ----                       | -----    | ----    |
| Fill                       | 13:02:15 | 78F     |
| LOCKED                     | 13:02:16 | 78F     |
| Condition                  | 13:02:44 | 81F     |
| Condition                  | 13:11:21 | 212F    |
| Sterilize                  | 13:15:17 | 250F    |
| Sterilize                  | 13:24:20 | 252F    |
| Sterilize                  | 13:33:23 | 252F    |
| Sterilize                  | 13:42:26 | 252F    |
| Sterilize                  | 13:51:29 | 252F    |
| Exhaust                    | 13:55:32 | 251F    |
| Exhaust                    | 14:00:34 | 288F    |
| +++++                      |          |         |
| WARNING!! Hot Liquids!!    |          |         |
| OPEN DOOR 1/4" and WAIT 10 |          |         |
| MINUTES TO COOL LOAD       |          |         |
| +++++                      |          |         |
| UNLOCKED                   | 14:05:45 | 191F    |
| Cooling                    | 14:05:46 | 190F    |
| Complete                   | 14:15:41 | 145F    |
| -----                      | -----    | ----    |
| MAX Temperature            |          | 253F    |
| Min Temperature            |          | 250F    |
| Condition Time             |          | 12:28   |
| Sterilize Time             |          | 40:01   |
| Exhaust Time               |          | 10:02   |
| Dry Time                   |          | 10:00   |
|                            |          | -----   |
| TOTAL CYCLE                |          | 1:13:25 |

**Figure 3-35**  
**Sample Printout (end of cycle)**

# Section 3A: Operating Instructions

## STERIS Ten Sixteen Plus (1016+) and Amsco Eagle Ten + (Domestic)

### 3A.0 GENERAL

The following procedures are intended to guide maintenance personnel when:

- (1) instructing operators in techniques designed to ensure optimum equipment performance; and
- (2) verifying the validity of operator complaints.

As a reminder for operators, a simplified version of the operating instructions can be found on a permanent plate mounted on the front panel of the unit. New operators should always use the supplied Operator Manual.

See Troubleshooting and Error Code Chart (Section 5) and Functional Description (Section 4) if this unit is not operating properly. Refer to Section 2, General Information, for capabilities of the unit.

### 3A.1 FEATURES

This section provides a brief description of the major features found on the STERIS Tabletop Steam Sterilizer (Plus Series).

#### 3A.1.1 Control Panel (Figure 3A-1)

The Control Panel features nine touch-sensitive pads which control all programmable functions of the STERIS Tabletop Steam Sterilizer (Plus Series) and an electroluminescent display area. Brief descriptions of each touch key and the display area follow:

**WARNING - STERILITY ASSURANCE HAZARD:** It is inappropriate to sterilize liquids intended for direct patient contact.

- **ON/STANDBY** - pressing this touch pad places the unit in the ON (indicator light illuminated) or STANDBY (indicator light not illuminated) mode. When not in use, the unit should be in the STANDBY mode.
- **STER TIME SET** - pressing this touch pad (at the appropriate time) starts the "sterilizer time set" function. See "Operating Instructions" for more information.
- **STER TEMP SET** - pressing this touch pad (at the appropriate time) starts the "sterilizer temperature set" function. See "Operating Instructions" for more information.
- **DRY TIME SET** - pressing this touch pad (at the appropriate time) starts the "dry time set" function. See "Operating Instructions" for more information.
- **GRAVITY** - pressing this touch pad (at the appropriate time) starts the "gravity" sterilization cycle. See "Operating Instructions" for more information.
- **LIQUID** - pressing this touch pad (at the appropriate time) starts the "liquid" sterilization cycle. See "Operating Instructions" for more information.
- **RESET** - pressing this touch pad during a cycle will abort the cycle. Pressing this touch pad when not in a cycle will return the control program to its original wait state.

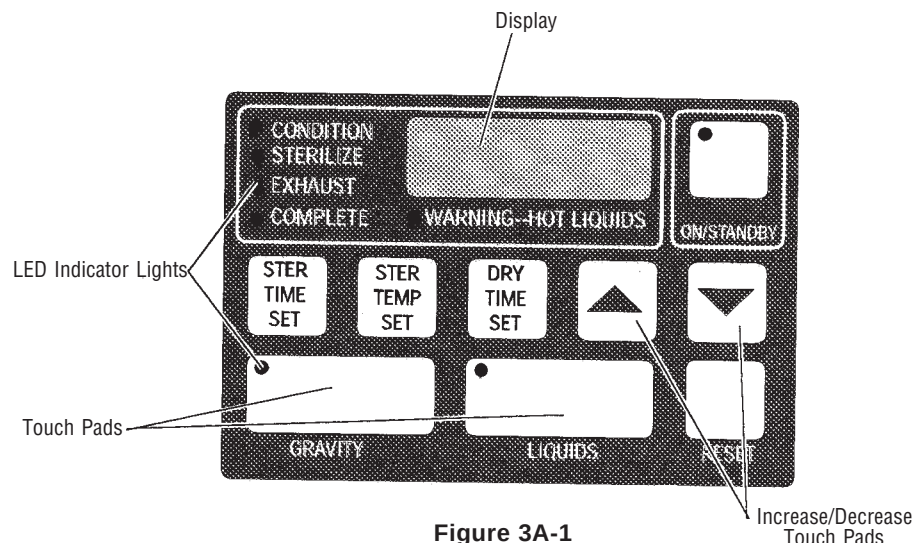


Figure 3A-1  
Control Panel

- **▲ & ▼** - pressing either of these touch pads will increase or decrease a selected parameter (e.g., sterilizer temperature, sterilizer time, time, date).
- **Display Area** - this area features an electroluminescent display for the presentation of all alphanumeric messages (i.e., error codes, times, date).
- **CONDITION, STERILIZE, EXHAUST, COMPLETE, WARNING - HOT LIQUIDS** - these areas all have corresponding indicator lights which inform the operator of the state of a given cycle.

### 3A.1.2 Operating Instructions and Diagnostic Codes Label (Figure 3A-2)

This label features a brief outline of the operating instructions for the sterilizer and a list of all diagnos-

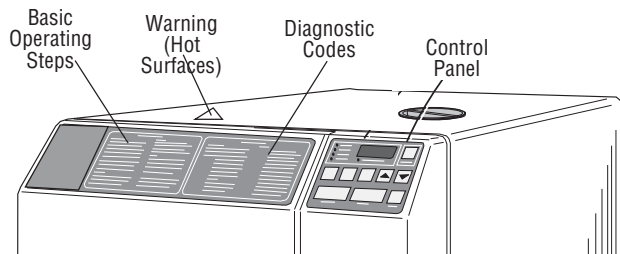


**Figure 3A-2**  
Operating Instructions  
and Diagnostic Codes Label Location

tic codes which may be displayed on the control panel as the result of an abnormal condition.

### 3A.1.3 Miscellaneous Features (Figure 3A-3)

The STERIS Tabletop Steam Sterilizer (Plus Series) features various safety and operating components on the rear and front panels of the unit. Following is a brief list and description of these components.

- **RESET Rocker Switch** - pressing the RESET rocker switch enables AC Power to the unit (rear panel).
- **OFF Rocker Switch** - pressing the OFF rocker switch disables AC Power to the unit (rear panel).
- **Reservoir Overflow Tube** - releases any excess water from the reservoir to avoid overfilling (rear panel). An extension tube (not by STERIS) can be attached to the overflow tube and routed to a drain to prevent water from lying on the counter in the event of an overflow.
- **Safety Valve** - releases excess pressure from the sterilizer chamber (rear panel).
- **Chamber Pressure Gauge** - displays the current pressure inside the chamber (0-60 psig). If this pressure gets too high (see Tables 3A-1 and 3A-2), it is released through the safety valve (rear panel, see Figure 3A-3).
- **Printer** (optional) - records all cycle data on 2-1/4" (5.72 cm) wide, single-ply thermal paper (see Figure 3A-4). See Section 7.14 for paper ordering information and Section 5.1.4.4 for paper reloading information.

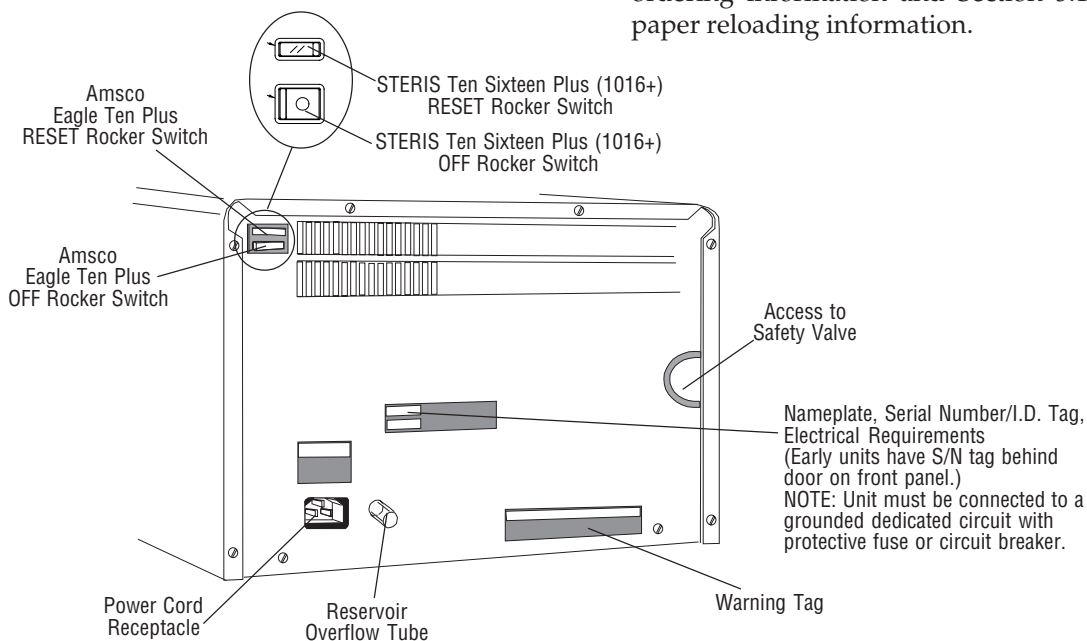


**Figure 3A-3**  
STERIS Tabletop Steam Sterilizer (Plus Series) (Rear View)

```

*****
*   C O N T R O L   O N   *
*****
3/05/98          at 13:28:26
*****

LOCKED    13:28:32    74F
=====
==== G R A V I T Y ====
=====
CYCLE START AT 13:28:42
                ON 3/05/00

CYCLE COUNT          5846
OPERATOR _____
STERILIZER  _____

STERILIZE TEMP        270F
STERILIZE TIME        3 min
DRY TIME              5 min

PHASE      TIME      TEMP
-----
Fill       13:28:57    75F
Condition  13:29:22    75F
Condition  13:41:59   213F
Sterilize  13:50:29   270F
Sterilize  13:51:29   271F
Sterilize  13:52:30   271F
Sterilize  13:53:30   271F
Exhaust    13:53:31   271F

+++++
      OPEN DOOR 1/4" and WAIT
      RECOMMENDED DRY TIME.
+++++

```

**Figure 3A-4**  
Sample Printout

## 3A.2 PREPARING UNIT FOR INITIAL USE

This 13-step procedure should be followed closely to ensure proper set up and operation of the sterilizer:

1. Open the sterilizer door (push handle in and slide upward) and remove all chamber contents: trays, fuses, paper (units with printer), and power cord (Figure 3A-5).
2. Unwrap the loading trays and power cord.
3. Carefully remove bottom shelf from inside the chamber and verify that the filter is connected to the fill port and is resting on the bottom of the chamber (Figure 3A-6).

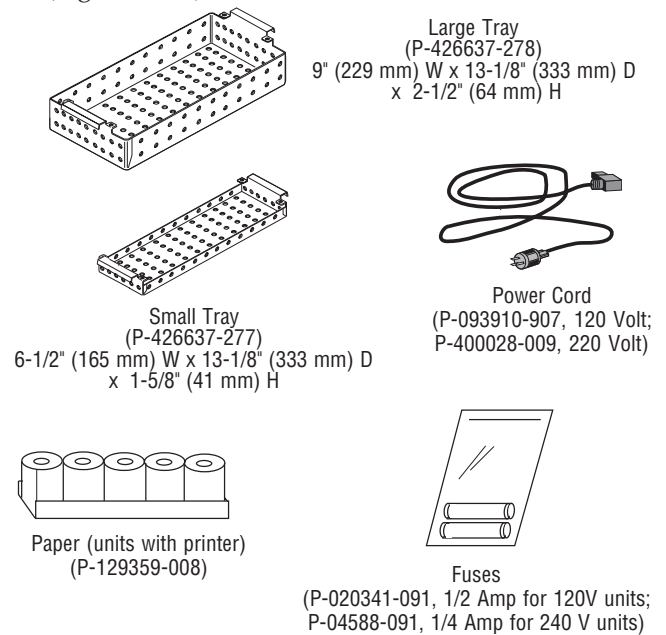


**Figure 3A-5**  
Chamber Contents

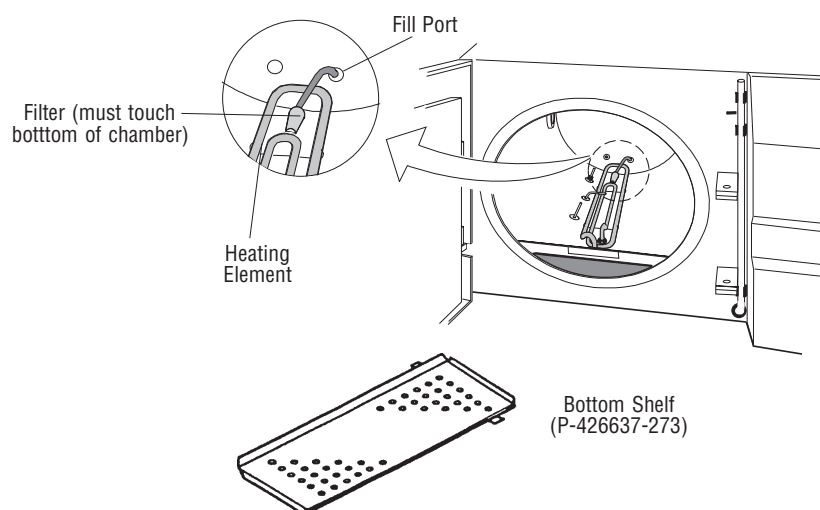


**Figure 3A-6**  
Filter Position

**⚠ WARNING - PERSONAL INJURY HAZARD:** To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.

**⚠ WARNING - PERSONAL INJURY HAZARD:** Proper functioning of the "Door Latched" sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting a cycle. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.

4. Verify that the water level tube is in an upright position and secure in its holders (Figure 3A-7 and Figure 3A-8). Make sure that water level tube is not contacting or interfering with the "Door Latched" sensor lever arm.
5. Replace bottom shelf and make sure the front edge of the shelf is inserted into tab for shelf support (see Figure 3A-7). Close and lock the chamber door (push handle in and slide downward).

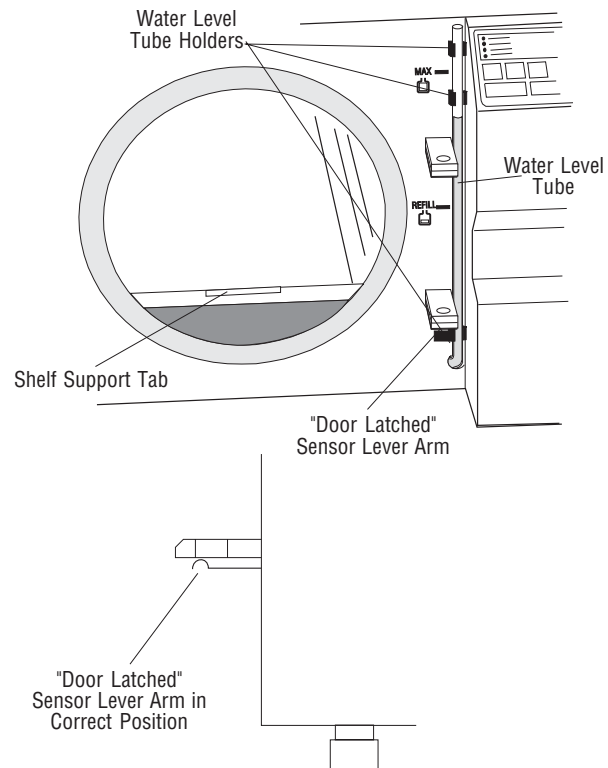


**Figure 3A-7**  
**Water Level Tube and "Door Latched" Sensor**

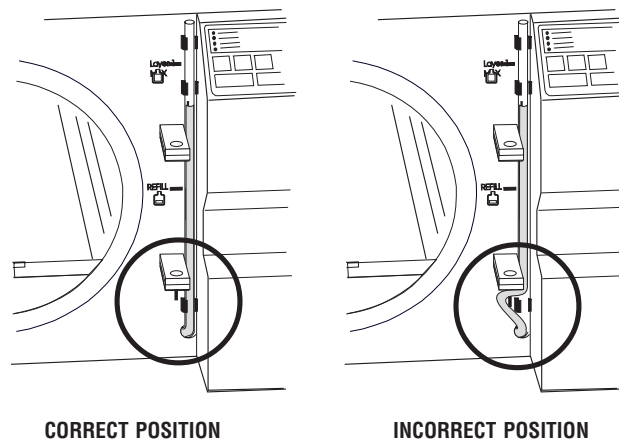


**Figure 3A-8**  
**Water Level Tube Position**

6. Attach the female end of the power cord to the rear of the sterilizer (Figure 3A-3).
7. Plug the male end of the power cord into a dedicated, properly grounded electric outlet of the voltage and current specified on the serial number/ID nameplate (located on rear or front panel of sterilizer, see Figure 3A-3).
8. Press the RESET rocker switch on the rear of the sterilizer (Figure 3A-9). The front panel display will alternate between OFF and time of day (see Figure 3A-10). The optional printer will print "POWER ON" (see Figure 3A-11).
9. Press the ON/STANDBY touch pad and verify that the indicator light turns on and TIME is displayed (see Figure 3A-12). The heaters will begin to cycle to preheat the chamber. The optional printer will print "CONTROL ON" (see Figure 3A-11).
10. Set the correct time and date (see *Setting Temperature Units and Time/Date* in Section 5).

**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** To avoid equipment damage, use deionized or distilled water **ONLY** for filling reservoir and cleaning.

**WARNING - PERSONAL INJURY HAZARD:** Do not overfill reservoir. To avoid slippery conditions and possible load contamination, immediately wipe up all spillage resulting from overfilling reservoir. (Reservoir overflow tube exits on back of unit.)

11. Remove the water reservoir cover (see Figure 2-1) and slowly fill reservoir with distilled or deionized water (minimum resistivity of 1 megohm/cm) until water level in the water level tube is between REFILL and MAX indicators (Figure 3A-14). Reservoir capacity is approximately 1 gal (3.8 L). **DO NOT OVERFILL.** Replace the water reservoir cover.

*NOTE: Do not add water to reservoir when there is water in the chamber. This may cause an overflow situation during the next cycle.*

12. Verify that there are no Error Messages on the front panel display. If there are, consult Appendix A following Section 3C for corrective measures.

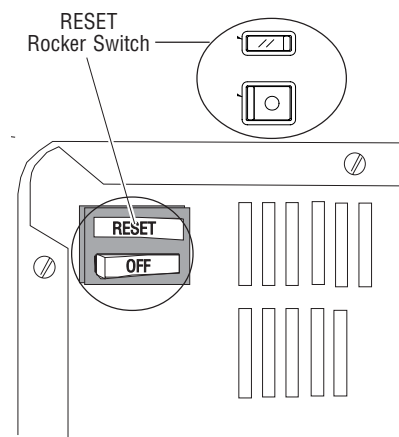


**Figure 3A-9**  
**Reset and Off Switches**

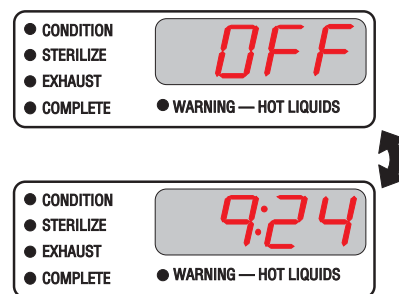


**Figure 3A-10**  
**Display**

```

=====
==          P O W E R   O N          ==
=====

3/05/98      AT   13:28:10
93910-121    VERS
040698

=====

=   C O N T R O L   O N   =
=====

3/05/98      AT   13:28:26

```

**Figure 3A-11**  
**Sample Printout**



**Figure 3A-12**  
**ON/STANDBY**

13. Press the ON/STANDBY touch pad and verify the indicator light is extinguished (see Figure 3A-13). The sterilizer should remain in the STANDBY mode (indicator light off) when the unit is not in use. The RESET rocker switch does not have to be pressed at the end of each day or between cycles.

*NOTE: Initial odor (from insulation) will disappear after approximately 24 hours use.*

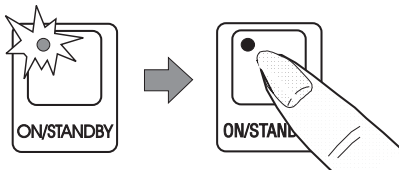


**Figure 3A-13  
ON/STANDBY**

### 3A.3 CONTROL MEASURES FOR VERIFYING STERILIZATION PROCESS

As part of the operator's verification of the sterilization process, biological indicators may be used to demonstrate that sterilization conditions have been met. The biological indicators used should consist of spores of *Bacillus stearothermophilus* that comply with the American National Standard, *Biological Indicators for saturated steam processes in health care facilities* (AAMI, 1986).

*NOTE: Contact STERIS for information on specific biological indicators recommended for use with this sterilizer.*

**WARNING - STERILITY ASSURANCE HAZARD:** The sterilizer is not designed to process dental handpieces.

This sterilizer should be biologically monitored during initial installation, after any major repairs, and at least once a week (preferably daily) during normal use. Each type of sterilization cycle used should be monitored. Consult AAMI ST42, "Steam sterilization and sterility assurance in office-based, ambulatory-care medical and dental facilities" for details, including guidelines for loads containing implantable devices.

The biological test pack used for installation testing or biological monitoring should be representative of the type of package or tray that will routinely be processed in the sterilizer. Of the types of packs or trays most frequently processed in each cycle, the one considered to be the most difficult to sterilize should be selected as the test pack for that cycle. **When selecting challenge packs, you should consider multiple layers of dressing materials, large metal masses, and mixed packs incorporating both.** The pack or tray selected should contain the

items normally present during routine sterilization, plus at least one biological indicator. At least one additional biological indicator from the same lot should be left unexposed to the sterilant and should be incubated and processed as a control.

The biological indicator test pack should be placed on its edge if it is a small pack or flat if it is a tray or large pack, and should be positioned in the center of the chamber, as close to the chamber door as possible. This is the "cold point" area of the chamber, which presents the greatest challenge to sterilization. The cycle being tested can then be selected and started, after which the biological indicators are to be handled, processed, and interpreted according to the biological indicator manufacturer's instructions.

Reference ANSI/AAMI ST42-1992, "Steam sterilization and sterility assurance in office-based, ambulatory-care medical and dental facilities."

### 3A.4 GRAVITY STERILIZATION

Gravity sterilization is a method of sterilization in which air in the sterilizing chamber is forced out and replaced with saturated steam.

**IMPORTANT:** Should an abnormal cycle condition occur, it will be displayed as indicated in Appendix A, Error Code Troubleshooting Chart.

**WARNING - PERSONAL INJURY HAZARD:** Sterilizer and trays will be hot after cycle is run. Always wear protective gloves and apron when removing a processed load. Protective gloves and apron should also be worn when reloading sterilizer following previous operation.

**WARNING - PERSONAL INJURY HAZARD:** To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.

**WARNING - PERSONAL INJURY HAZARD:** Proper functioning of the "Door Latched" sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting a cycle. Do not start a cycle if the sensor arm is out of position.

**WARNING - FIRE HAZARD:** When sterilizing wrapped goods, do not allow pouches or wraps to touch chamber wall.

**⚠ WARNING - EXPLOSION HAZARD:** Do not operate this sterilizer in the presence of flammable compounds.

**⚠ WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading or cleaning.

**⚠ WARNING - FALL HAZARD:** To prevent falls, keep floors dry by immediately wiping up any spilled liquids or condensation in sterilizer loading or unloading area.

### 3A.4.1 Preuse Checkout Procedure

1. Prior to the first cycle of the day (be sure the chamber is not hot), wipe out the cooled chamber using a clean cloth with deionized or distilled water. Dry the chamber with a lint-free cloth. If the chamber needs cleaning, refer to Section 5 ("Daily").
2. Verify that the water reservoir is full (water level should be between REFILL and MAX indications on the water level tube, Figure 3A-14). If needed, slowly add distilled or deionized water (minimum resistivity of 1 megohm/cm). Do not overfill. Replace the water reservoir cover.
3. Verify that the water level tube is in an upright position and secure in its holders. Make sure that water level tube is not contacting or interfering with the "Door Latched" sensor lever arm.
4. Verify that the "Door Latched" sensor lever arm is in the correct position and that the sensor is operating properly. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.

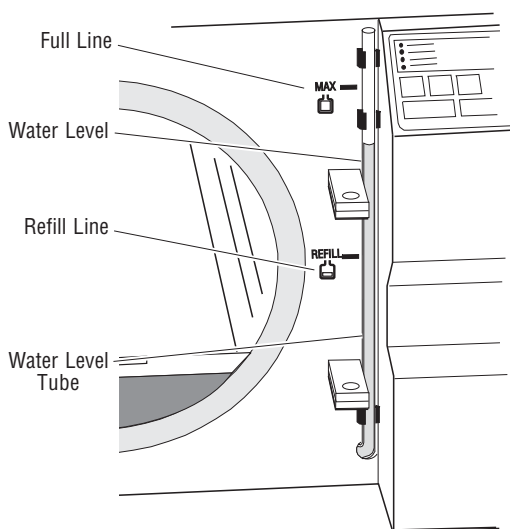


**Figure 3A-14**  
Filling Reservoir

5. Without closing the chamber door, press the ON/STANDBY touch pad; verify that the indicator light is ON.

### 3A.4.2 Preparation

1. Use freshly laundered 140 thread count muslin (or equivalent)\*. This helps prevent superheating and provides longer life of the textiles.
2. Limit the size and density of each muslin pack. This ensures complete steam permeation, and assists drying.
3. Limit the size and density of wrapped instrument sets to assist in minimizing "wet pack" problems during post-sterilization.
4. Do not stack or nest utensils unless they are separated by muslin (or equivalent)\*.
5. Use two double-thickness 140 thread count muslin (or equivalent)\* wrappers for surgical supplies. This provides protection after sterilization.

\* Muslin of 140 thread count is the present standard for steam sterilization. The manufacturers of other materials should show data that indicates their product is equivalent to the muslin profile in steam sterilization, drying, and sterility maintenance.

### 3A.4.3 Loading the Trays and Chamber

The following procedure must be followed closely when sterilizing wrapped, unwrapped, and packed goods.

*NOTE: When positioning the loading trays, the small tray must always be used under the large tray even if the large tray is the only one containing items to be sterilized.*

1. Place items to be sterilized into the trays, allowing space for proper air removal and steam penetration throughout the load. Pay special attention to the following:
  - a. Place all fabric packs on edge and arrange packs for maximum steam exposure.
  - b. Place items that might entrap air or water, such as bowls or pitchers, upside down or on edge so they will be sterilized and dried properly (i.e., they will not "catch" water during the drying process).
  - c. Place instrument sets, unwrapped or wrapped, flat in the tray.
  - d. Remove any caps from empty jars, canisters, and nonporous containers and place them upside down in the tray to facilitate sterilization and drying.

- e. Place hard goods (i.e., metallic instruments) on the bottom when processing mixed loads combining fabrics and hard goods. This prevents wetting of wrapped packs from condensed water dripping from the hard goods load.
2. Carefully insert trays into the sterilizing chamber (Figure 3A-15).
3. Close and lock the chamber door. Verify the door is locked and ready for operation.

#### 3A.4.4 Programming the Controller: Gravity Cycle

The following procedure is used to alter preset cycle parameters for a given load (see Figure 3A-16 for touch pad locations). Consult Table 3A-1 for minimum times and temperatures for various load types. Read through the entire procedure prior to programming the controller as there is a 5-second time limit between steps.

**WARNING - STERILITY ASSURANCE HAZARD:** The cycles listed in Table 3A-1 and 3A-2 have been validated. If different cycle parameters are required, IT IS THE RESPONSIBILITY OF THE HEALTH CARE FACILITY TO VALIDATE THE CYCLE TO ASSURE THAT THE PROPER STERILITY ASSURANCE LEVEL (SAL) AS WELL AS DRYING EFFICIENCY IS MET.

1. After the door is closed, press the STER TIME SET touch pad. The GRAVITY and LIQUID indicator lights will both turn on.
2. Press the GRAVITY touch pad. The LIQUID indicator light will extinguish.
3. Use the increase or decrease touch keys (see Figure 3A-17) to set the proper sterilization time for the load (consult Table 3A-1 for proper sterilization times).
4. Press the STER TEMP SET touch pad. The GRAVITY and LIQUID indicator lights will both turn on.
5. Press the GRAVITY touch pad. The LIQUID indicator light will extinguish.

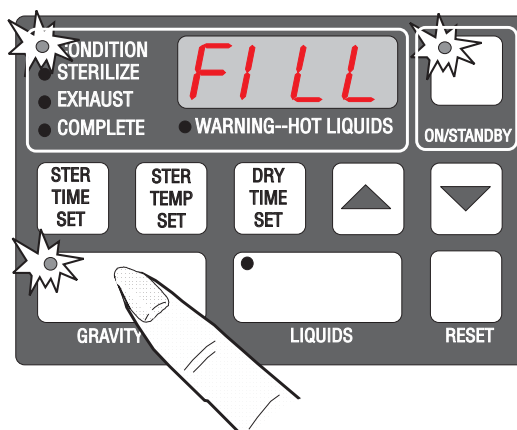


Figure 3A-16  
Control Panel (Step 1, "STARTING" shown)

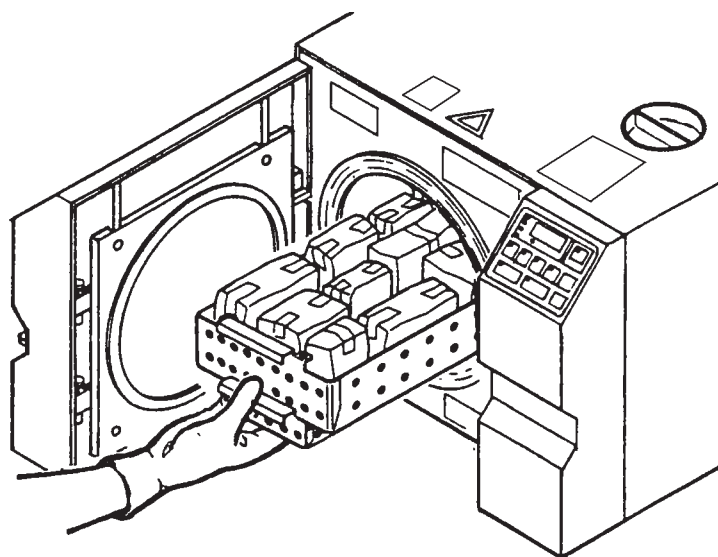


Figure 3A-15  
Loading Sterilizer Chamber

- Use the increase or decrease touch keys (Figure 3A-17) to set the proper sterilization temperature for the load (consult Table 3A-1 for proper sterilization temperatures).
- Press the DRY TIME SET touch pad. The GRAVITY indicator light will turn on.
- Press the GRAVITY touch pad.
- Use the increase or decrease touch keys to set the proper sterilization dry time for the load (consult Table 3A-1 for proper sterilization dry times).



Increase Touch Pad      Decrease Touch Pad

Figure 3A-17

### 3A.4.5 Initiating a Gravity Cycle

*NOTE: Pressing the RESET touch pad while a cycle is in progress will always abort the cycle. If a cycle is aborted, the load must be reprocessed.*

- Press the GRAVITY touch pad once to verify settings, set values will be displayed in succession (if incorrect, follow the previous procedure to alter parameters), then again within 5 seconds to initiate the cycle. The panel will display "FILL" (it takes 1 to 2 minutes to fill).
- Next, the optional printer will print relevant data in the format shown in Figure 3A-18.

```

LOCKED      13:28:32  74F
=====
=== G R A V I T Y ===
=====
CYCLE START AT 13:28:42
                ON  3/05/90

CYCLE COUNT      5846
OPERATOR  -----
STERILIZER  -----

STERILIZE TEMP    270F
STERILIZE TIME    3 min
DRY TIME          5 min

PHASE      TIME    TEMP
-----
Fill      13:28:57  75F

```

Figure 3A-18  
Sample Printout

| CYCLE TYPE        | LOAD*                                                                                                    | CONTROL SETTINGS            |               |             | MINIMUM**<br>PRESSURE<br>(psig) |
|-------------------|----------------------------------------------------------------------------------------------------------|-----------------------------|---------------|-------------|---------------------------------|
|                   |                                                                                                          | STERILIZE CYCLE<br>SETTINGS |               | DRY<br>TIME |                                 |
|                   |                                                                                                          | STERILIZE<br>TIME (min)     | TEMPERATURE   |             |                                 |
| PACKED            | Fabric Packs                                                                                             | 30                          | 250°F (121°C) | 30          | 15                              |
| WRAPPED           | Wrapped<br>instrument sets                                                                               | 10                          | 270°F (132°C) | 45          | 27                              |
| UNWRAPP-<br>ED*** | Unwrapped metal<br>instruments<br>(without lumens),<br>trays and other<br>empty, nonporous<br>containers | 3                           | 270°F (132°C) | 0           | 27                              |

\* If processing mixed loads, always use the longer exposure time setting.

\*\* This pressure reading is the minimum necessary to achieve sterility. Actual readings may be higher.

\*\*\* The unwrapped cycle is typically used for nonporous, unwrapped instruments for immediate use only.

**Table 3A-1**  
**Minimum Recommended Sterilizer Time, Temperature, and Dry Time Settings - Gravity Cycle**

### 3A.5 PHASES OF THE GRAVITY CYCLE

*NOTE: If the cycle does not start when the GRAVITY touch pad is pressed, consult Section 5.4, "Troubleshooting and Error Codes."*

After successfully programming and starting the cycle controller, the STERIS Ten Sixteen Plus (1016+) automatically begins the sterilization process (CONDITION, STERILIZE, EXHAUST, DRY, and COMPLETE phases).

A brief description of each stage in this process follows:

#### 1. Condition

During the CONDITION phase, the CONDITION indicator light illuminates and the chamber heater turns on. The temperature is then displayed on the front panel display and rises until the preset sterilization temperature is reached. See Figure 3A-19.

- i If the chamber is cold, allow up to 30 minutes for chamber to reach sterilization temperature.
- ii If the chamber is hot, allow up to 20 minutes for chamber to reach sterilization temperature.

*NOTE: The sterilizer is programmed to reach the preset sterilization temperature within 20 minutes. If sterilization temperature is not reached during 20 minutes of conditioning, the control holds and waits 15 minutes for rise to temperature set point. If after the additional 15-minute wait time, the chamber temperature has not reached the set point, the control aborts the cycle. If this occurs, see Section 4, "Troubleshooting."*

#### 2. Sterilize

The STERILIZE indicator light illuminates once the chamber attains the temperature specified through the program control (the timer then counts downward from the preset exposure time to zero). During the STERILIZE phase, temperature and time remaining in phase are displayed alternately on the front panel display once sterilization temperature is achieved. See Figure 3A-20.

*NOTE: Temperature may rise 3°-5°F above the preset cycle temperature parameter.*

#### 3. Exhaust

The EXHAUST indicator light illuminates once the STERILIZE phase is complete. During the EXHAUST phase, the heater turns off, the chamber exhausts, and the chamber temperature is shown on the front panel display. The buzzer sounds for 4 seconds when EXHAUST is complete; "door" is shown on the front panel display and the buzzer sounds every minute until the door is opened. Be sure chamber pressure is at zero prior to opening. See Figure 3A-21.



Figure 3A-19  
Sterilizer "CONDITION" Phase Display



Figure 3A-20  
Sterilizer "STERILIZE" Phase Display

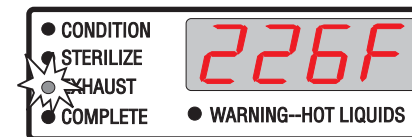


Figure 3A-21  
Sterilizer "EXHAUST" Phase Display

At the end of the EXHAUST phase, open the door (push in and lift the handle), then push the door in until it rests against the door latching mechanism (DO NOT CLOSE DOOR) as pictured in Figure 3A-22. The dry heaters will automatically turn on and begin DRY phase.

#### 4. Dry

During the DRY phase, the phase time is shown on the front panel display and counts upward (min:sec) until the DRY time specified through the program control is achieved (see Figure 3A-23). (The operator may terminate the DRY phase at anytime by pressing the ON/STANDBY touch pad.) When the touch pad is pressed, or the programmed DRY time is achieved, "donE" appears in the front panel display to indicate that the cycle is complete.

#### 5. Complete

Once the DRY phase is complete, the COMPLETE indicator light illuminates and "donE" appears in the front panel display (see Figure 3A-24). Pressing the RESET touch key completes the cycle and the time of day is shown in the front panel display.

Finally, remove the tray containing the sterilized items from the chamber (see Figure 3A-25). (Remember, protective gloves are necessary when removing items from the sterilizer.)

Visually check outside of wrapper for dryness. A pack or instrument tray is considered unacceptable if there are water droplets or visible moisture on the exterior of the package or on the tape used to secure it.

Transfer to surface which is well padded with fabric to prevent condensation. Do not place on a cold surface. Be sure there is no air conditioning or cold air vents in close proximity.

Remove packs or instrument trays from padded surface when they have reached ambient (room) temperature.

The optional printer will print all information pertinent to the cycle until the cycle is complete (Figure 3A-26).

*NOTE: A small puddle of water may be found on the counter when the door is opened at the end of a cycle. This puddling is due to condensation of steam on the door and gasket. Use a clean, absorbent cloth to immediately wipe up any water in or around the sterilizer after each cycle.*

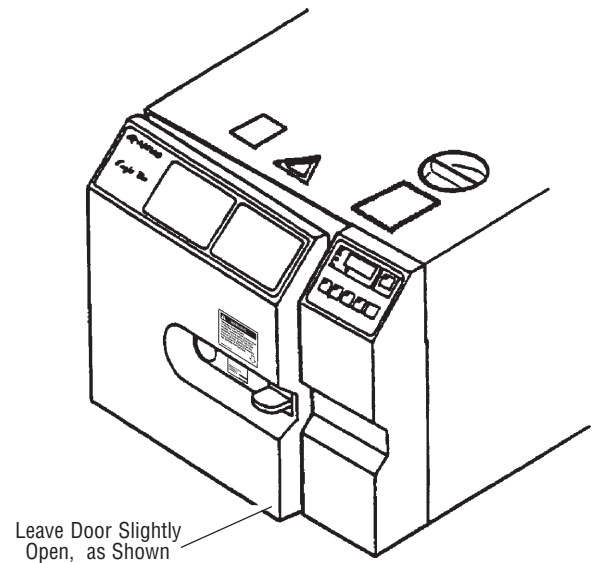


**Figure 3A-22**  
**Door Ajar Following Exhaust Phase**



**Figure 3A-23**  
**Sterilizer "DRY" Phase Display**

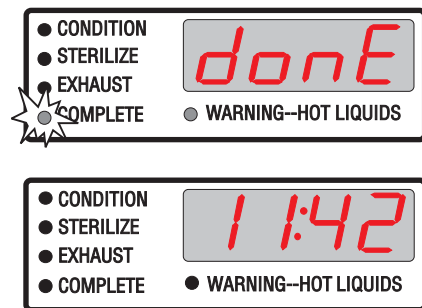


**Figure 3A-24**  
**Sterilizer "COMPLETE" Phase Display**

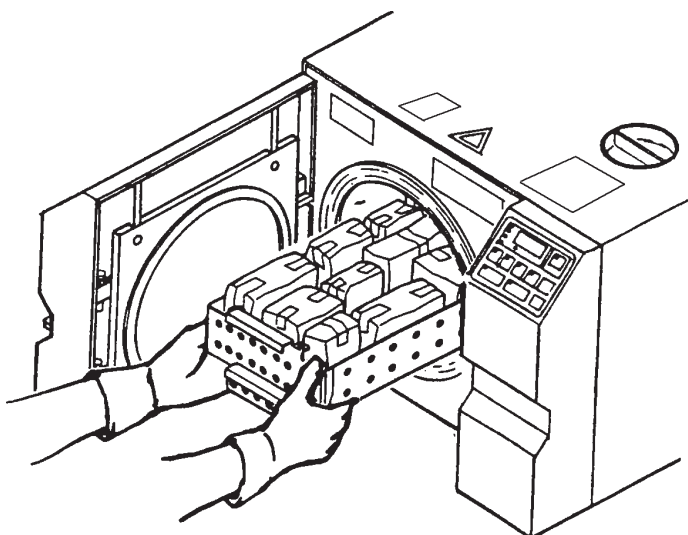


Figure 3A-25  
Unloading Sterilizer

| PHASE                   | TIME     | TEMP  |
|-------------------------|----------|-------|
| -----                   | -----    | ----- |
| Fill                    | 13:28:57 | 75F   |
| Condition               | 13:29:22 | 75F   |
| Condition               | 13:41:59 | 213F  |
| Sterilize               | 13:50:29 | 270F  |
| Sterilize               | 13:51:29 | 271F  |
| Sterilize               | 13:52:30 | 271F  |
| Sterilize               | 13:53:30 | 271F  |
| Exhaust                 | 13:53:31 | 271F  |
| +++++                   |          |       |
| OPEN DOOR 1/4" and WAIT |          |       |
| RECOMMENDED DRY TIME.   |          |       |
| +++++                   |          |       |
| UNLOCKED                | 13:57:00 | 223F  |
| Drying                  | 13:57:00 | 223F  |
| Complete                | 14:02:02 | 108F  |
| -----                   | -----    | ----- |
| MAX Temperature         |          | 272F  |
| Min Temperature         |          | 270F  |
| Condition Time          | 20:59    |       |
| Sterilize Time          | 3:01     |       |
| Exhaust Time            | 3:28     |       |
| Dry Time                | 5:00*    |       |
| -----                   |          |       |
| TOTAL CYCLE             | 0:33:11  |       |
| Complete                | 14:02:15 | 107F  |

Figure 3A-26  
Sample Printout (end of cycle)

\*The dry phase of the cycle may be terminated at any time during its 60-minute length by pressing ON/STANDBY. A tone sounds at 30, 45, and 60 minutes during the drying phase, prompting the operator to terminate drying, if desired. At the end of 60 minutes, the control signals the end of the cycle and displays "doneE."

### 3A.6 LIQUID STERILIZATION

Liquid sterilization is accomplished by utilizing a specially designed sterilization cycle.

**IMPORTANT:** Should an abnormal cycle condition occur, it will be displayed as indicated in Appendix A, Error Code Troubleshooting Chart.

 **WARNING - BURN HAZARD:** This sterilizer is not designed to process flammable liquids.

 **WARNING - EXPLOSION HAZARD:** Do not operate this sterilizer in the presence of flammable compounds.

 **WARNING - BURN HAZARD:** Sterilizer and trays will be hot after cycle is run. Always wear protective gloves and apron when removing a processed load. Protective gloves and apron should also be worn when reloading sterilizer following previous operation.

 **WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading or cleaning.

 **WARNING - STERILITY ASSURANCE HAZARD:** It is inappropriate to sterilize liquids intended for direct patient contact.

 **WARNING - PERSONAL INJURY HAZARD:** Use only vented closures - do not use screw caps or rubber stoppers with crimped seals.

 **WARNING - PERSONAL INJURY HAZARD:** Use only Type I borosilicate glass bottles - do not use ordinary glass jugs or any container not designed for sterilization.

 **WARNING - PERSONAL INJURY HAZARD:** Open door slowly at the end of a liquid sterilization cycle. Do not allow hot bottles to be jolted. This can cause bottle explosions! Do not move bottles if any boiling or bubbling is present.

 **WARNING - PERSONAL INJURY HAZARD:** Allow bottles to cool to touch before attempting to move them from sterilizer shelf or tray(s) to the storage area.

 **WARNING - PERSONAL INJURY HAZARD:** To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.

 **WARNING - PERSONAL INJURY HAZARD:** Proper functioning of the "Door Latched" sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting a cycle. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.

 **WARNING - FALL HAZARD:** To prevent falls, keep floors dry by immediately wiping up any spilled liquids or condensation in sterilizer loading or unloading area.

 **CAUTION - POSSIBLE EQUIPMENT DAMAGE:** If media is processed, bottles and tubes should contain no more than 1/2 the total volume of the container. When processing water bottles and test tubes, the bottles and tubes should contain no more than 3/4 the total volume of the container. Chamber, filter, and water level probe should be cleaned daily when processing media.

 **CAUTION - POSSIBLE EQUIPMENT DAMAGE:** Sterilization of chloride-containing solutions can cause chamber corrosion and is not recommended by the manufacturer. However, if chloride-containing solutions must be processed, clean the chamber, filter, and water level probe after each use.

### 3A.6.1 Preuse Checkout Procedure

**! WARNING - PERSONAL INJURY HAZARD:** To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.

**! WARNING - PERSONAL INJURY HAZARD:** Proper functioning of the "Door Latched" sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting a cycle. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.

**! WARNING - PERSONAL INJURY HAZARD:** Do not overfill reservoir. To avoid slippery conditions and possible load contamination, immediately wipe up all spillage resulting from overfilling reservoir. (Reservoir overflow tube exits on back of unit.)

1. Prior to the first cycle of the day (be sure the chamber is not hot), wipe out the cooled chamber using a clean cloth with deionized or distilled water. Dry the chamber with a lint-free cloth. If the chamber needs cleaning, refer to Section 5, ("Daily").
2. Verify that the water reservoir is full (water level should be between REFILL and MAX indications on the water level tube, Figure 3A-14). If needed, slowly add distilled or deionized water (minimum resistivity of 1 megohm/cm). Do not overfill. Replace the water reservoir cover.
3. Verify that the water level tube is in an upright position and secure in its holders. Make sure that water level tube is not contacting or interfering with the "Door Latched" sensor lever arm.
4. Verify that the "Door Latched" sensor lever arm is in the correct position and that the sensor is operating properly. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.
5. Without closing the chamber door, press the ON/STANDBY touch pad; verify that the indicator light is ON.

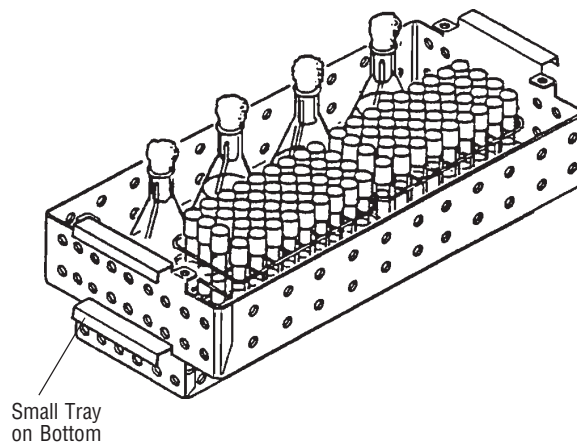


**Figure 3A-27**  
**Loading Trays - Liquid Cycle**

### 3A.6.2 Loading the Tray and Chamber

The following procedure must be followed precisely when sterilizing liquids:

*NOTE: When positioning the loading trays, the small tray must always be used under the large tray even if the large tray is the only one containing items to be sterilized.*

1. Place items to be sterilized into tray, allowing space for proper air removal and steam circulation between items (Figure 3A-28). Only use Type 1 borosilicate glass containers and do not overload the trays (Figure 3A-27). Do not squeeze bottles against each other.
2. Carefully insert trays into the sterilizing chamber.
3. Close and lock the chamber door.

### 3A.6.3 Programming the Cycle Controller: Liquid Cycle

The following procedure is used to alter preset cycle parameters for a given load (see Figure 3A-8 for touch pad locations). Consult Table 3A-2 for minimum time and temperature. Read through the entire procedure prior to programming the controller as there is a 5-second time limit between steps.

**! WARNING - STERILITY ASSURANCE HAZARD:** The cycles listed in Tables 3A-1 and 3A-2 have been validated. If different cycle parameters are required, IT IS THE RESPONSIBILITY OF THE HEALTH CARE FACILITY TO VALIDATE THE CYCLE TO ENSURE THAT THE PROPER STERILITY ASSURANCE LEVEL (SAL), AS WELL AS DRYING EFFICIENCY, IS MET.

1. After the door is closed, press the STER TIME SET touch pad. The GRAVITY and LIQUID indicator lights will both turn on.
2. Press the LIQUID touch pad. The GRAVITY indicator light will extinguish.
3. Use the increase or decrease touch keys (see Figure 3A-29) to set the proper sterilization time for the load (consult Table 3A-2 for proper sterilization time).
4. Press the STER TEMP SET touch pad. The GRAVITY and LIQUID indicator lights will both turn on.
5. Press the LIQUID touch pad. The GRAVITY indicator light will extinguish.
6. Use the increase or decrease touch keys to set the proper sterilization temperature for the load (consult Table 3A-2 for proper sterilization temperature).

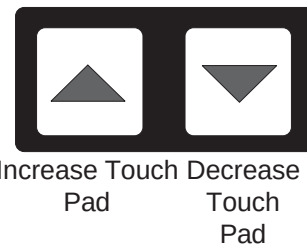


Figure 3A-29

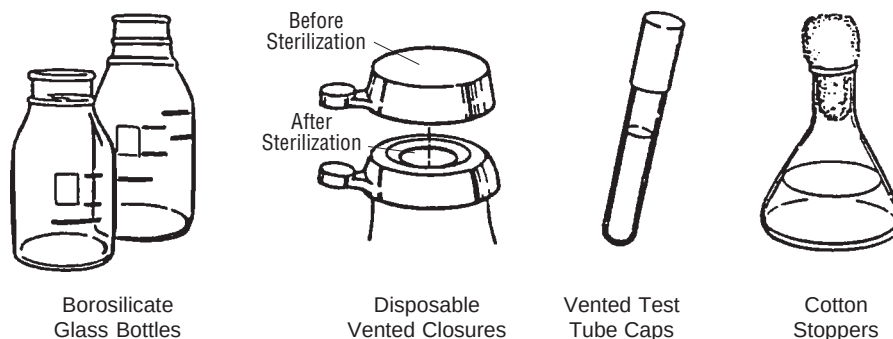


Figure 3A-28  
Proper Liquid Containers and Vented Closures

### 3A.6.4 Initiating a Liquid Cycle

**NOTE:** Pressing the RESET touch pad while a cycle is in progress will always abort the cycle. If a cycle is aborted, the load must be reprocessed.

1. Press the LIQUID touch pad once, to verify settings, set values will be displayed in succession (if incorrect, follow the previous procedure to alter parameters), then again within 5 seconds to initiate the cycle. The panel will display "FILL" (it takes 1 to 2 minutes to fill). See Figure 3A-30.
2. Next, the optional printer will print relevant data in the format shown in Figure 3A-31.



Figure 3A-30

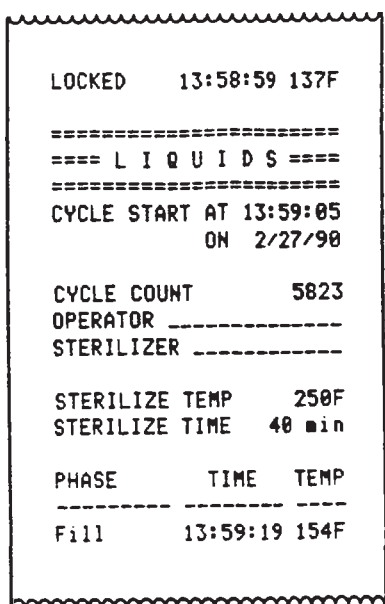


Figure 3A-31  
Sample Printout

### 3A.7 PHASES OF THE LIQUID CYCLE

**NOTE:** If the cycle does not start when the LIQUID touch pad is pressed, consult Appendix A, Error Code Troubleshooting Chart.

After successfully starting the cycle controller, the STERIS Ten Sixteen Plus (1016+) automatically begins the sterilization process (CONDITION, STERILIZE, EXHAUST, COOL, and COMPLETE phases).

Following is a brief description of each stage in this process.

#### 1. Condition

During the CONDITION phase, the CONDITION and WARNING - HOT LIQUIDS indicator lights illuminate and the chamber heater turns on. The temperature is then displayed on the front panel display and rises until the preset sterilization temperature is reached.

- i If the chamber is cold, allow up to 30 minutes for chamber to reach sterilization temperature.
- i If the chamber is hot, allow up to 20 minutes for chamber to reach sterilization temperature.

**NOTE:** The sterilizer is programmed to reach the preset sterilization temperature within 20 minutes. If sterilization temperature is not reached during 20 minutes of conditioning, the control holds and waits 15 minutes for rise to temperature set point. If after the additional 15-minute wait time the chamber temperature has not reached the set point, the control aborts the cycle. If this occurs, see Section 4, "Troubleshooting."

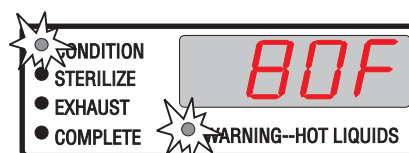


Figure 3A-32  
Sterilizer "CONDITION" Phase Display

| FLASK SIZE           | STERILIZE CYCLE SETTINGS   |               | MINIMUM*<br>PRESSURE<br>(psig) |
|----------------------|----------------------------|---------------|--------------------------------|
|                      | EXPOSURE<br>TIME (minutes) | TEMPERATURE   |                                |
| 500 mL or<br>smaller | 40                         | 250°F (121°C) | 15                             |

\* This pressure reading is the minimum necessary to achieve sterility. Actual readings may be higher.

**Table 3A-2**  
Minimum Recommended Exposure Time, Temperature Settings,  
and Pressure Gauge Readings - Liquid Cycle

*NOTE: Once sterilization temperature is reached (250°F, 121°C), verify that chamber pressure gauge indicates at least the minimum pressure for the cycle selected as shown in Table 3A-2. If the pressure is less than specified, press RESET to abort the cycle, then consult Section 4, "Troubleshooting."*

## 2. Sterilize

The STERILIZE indicator light illuminates once the chamber attains the temperature specified through the program control (the timer then counts downward from the preset exposure time to zero). During the STERILIZE phase, temperature and time remaining in phase are displayed alternately on the front panel display once sterilization temperature is achieved. See Figure 3A-33.

*NOTE: Temperature may rise 3-5°F above preset cycle temperature parameter.*

## 3. Exhaust

The EXHAUST indicator light illuminates once the sterilizer phase is completed (Figure 3A-34). During the EXHAUST phase, the heater turns off, the chamber exhausts, and the chamber temperature is shown on the front panel display.

The buzzer sounds for 4 seconds when EXHAUST is complete; "door" is shown on the front panel display and the buzzer sounds every minute until the door is opened. Be sure chamber pressure is at zero prior to opening.

Open the door (push in and lift the handle), then push the door in until it rests against the door latching mechanism (DO NOT CLOSE DOOR) as pictured in Figure 3A-22.

## 4. Cool

During the COOL phase, the phase time is shown on the front panel display and counts upward (10 min.) until the COOL time automatically specified by program control is achieved. See Figure 3A-35.

## 5. Complete

Once the COOL phase is complete, the COMPLETE indicator light illuminates and "done" appears in the front panel display (Figure 3A-36). Pressing the RESET touch key completes the cycle and the time of day is shown in the front panel display.

Finally, remove the trays containing sterilized items from the chamber (Figure 3A-38). (Remember, protective gloves and a face mask are necessary when removing items from the sterilizer.)

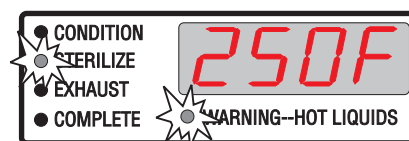


**Figure 3A-33**  
Sterilizer "STERILIZE" Phase Display

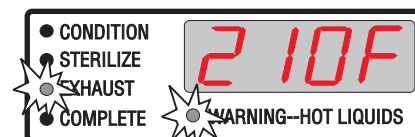


**Figure 3A-34**  
Sterilizer "EXHAUST" Phase Display

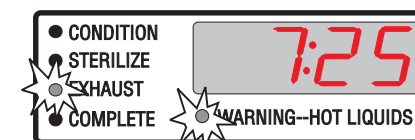


**Figure 3A-35**  
Sterilizer "COOL" Phase Display



**Figure 3A-36**  
Sterilizer "COMPLETE" Phase Display

The optional printer will print all information pertinent to the cycle until the cycle is complete (Figure 3A-37).

*NOTE: A small puddle of water may be found on the counter when the door is opened at the end of a cycle. This puddling is due to condensation of steam on the door and gasket. Use a clean, absorbent cloth to immediately wipe up any water in or around the sterilizer after each cycle.*

### 3A.8 LIQUID/MEDIA LOSS

**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** If media is processed, bottles and tubes should contain no more than 1/2 the total volume of the container. When processing water bottles and test tubes, the bottles and tubes should contain no more than 3/4 the total volume of the container. Chamber, filter, and water level probe should be cleaned daily when processing media.

Certain biological media may boil more vigorously during slow exhaust because of vented closure being used, and/or ratio of liquid to volume of media container. If excessive liquid/media loss or if media spills are discovered in the bottom of chamber, proceed as follows:

1. Verify that media containers are not overly full. If uncertain about volume of media recommended per container, contact a STERIS Customer Account Representative.
2. Use appropriate vented closure for media being processed.
3. Certain liquid/media processes may require extended exhaust rates beyond standard EXHAUST phase. For additional information, contact a STERIS Customer Account Representative.

*NOTE: Chamber, filter, and water level probe should be cleaned daily when processing media. See Section 5 for cleaning instructions.*

| PHASE                      | TIME     | TEMP |
|----------------------------|----------|------|
| -----                      | -----    | ---- |
| Fill                       | 13:02:15 | 78F  |
| LOCKED                     | 13:02:16 | 78F  |
| Condition                  | 13:02:44 | 81F  |
| Condition                  | 13:11:21 | 212F |
| Sterilize                  | 13:15:17 | 250F |
| Sterilize                  | 13:24:20 | 252F |
| Sterilize                  | 13:33:23 | 252F |
| Sterilize                  | 13:42:26 | 252F |
| Sterilize                  | 13:51:29 | 252F |
| Exhaust                    | 13:55:32 | 251F |
| Exhaust                    | 14:00:34 | 288F |
| +++++                      |          |      |
| WARNING!! Hot Liquids!!    |          |      |
| OPEN DOOR 1/4" and WAIT 10 |          |      |
| MINUTES TO COOL LOAD       |          |      |
| +++++                      |          |      |
| UNLOCKED                   | 14:05:45 | 191F |
| Cooling                    | 14:05:46 | 190F |
| Complete                   | 14:15:41 | 145F |
| -----                      | -----    | ---- |
| MAX Temperature            |          | 253F |
| Min Temperature            |          | 250F |
| Condition Time             | 12:28    |      |
| Sterilize Time             | 40:01    |      |
| Exhaust Time               | 10:02    |      |
| Dry Time                   | 10:00    |      |
|                            | -----    |      |
| TOTAL CYCLE                | 1:13:25  |      |

**Figure 3A-37  
Sample Printout  
(end of cycle)**

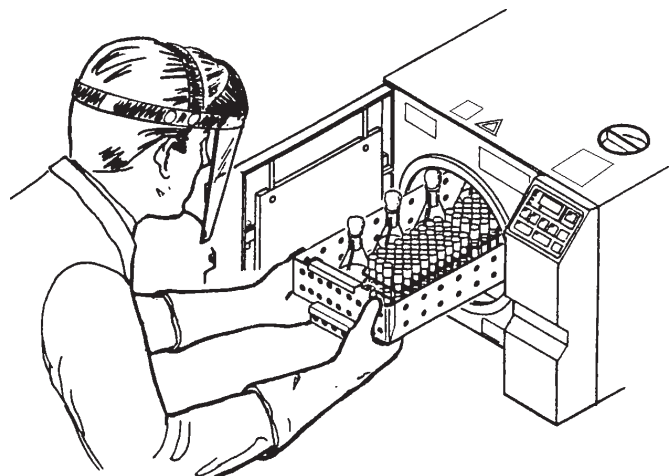


**Figure 3A-38  
Unloading Liquids**

## Section 3B: Operating Instructions

### STERIS Ten Sixteen (1016) and Amsco Eagle Ten (International)

#### 3B.0 GENERAL

The following procedures are intended to guide maintenance personnel when:

- (1) instructing operators in techniques designed to ensure optimum equipment performance; and
- (2) verifying the validity of operator complaints.

As a reminder for operators, a simplified version of the operating instructions can be found on a permanent plate mounted on the front panel of the unit. New operators should always use the supplied Operator Manual.

See Troubleshooting and Error Code Chart (Section 5) and Functional Description (Section 4) if this unit is not operating properly. Refer to Section 2, General Information, for capabilities of the unit.

#### 3B.1 FEATURES

This section provides a brief description of the major features found on the STERIS Tabletop Steam Sterilizers.

##### 3B.1.1 Control Panel (Figure 3B-1)

The Control Panel features six touch-sensitive pads which control all programmable functions of the STERIS Tabletop Steam Sterilizer and an electro-

luminescent display area. Brief descriptions of each touch key and the display area follow:

**WARNING - STERILITY ASSURANCE HAZARD:** It is inappropriate to sterilize liquids intended for direct patient contact.

- **ON/STANDBY** - pressing this touch pad places the unit in the ON (indicator light illuminated) or STANDBY (indicator light not illuminated) mode. When not in use, the unit should be in the STANDBY mode.
- **UNWRAPPED** - pressing this touch pad (at the appropriate time) starts the sterilization cycle for unwrapped products. See "Operating Instructions" for more information.
- **WRAPPED** - pressing this touch pad (at the appropriate time) starts the sterilization cycle for wrapped products. See "Operating Instructions" for more information.
- **LIQUIDS** - pressing this touch pad (at the appropriate time) starts the sterilization cycle for liquid products. See "Operating Instructions" for more information.
- **PACKS** - pressing this touch pad (at the appropriate time) starts an appropriate sterilization cycle for packed products. See "Operating Instructions" for more information.

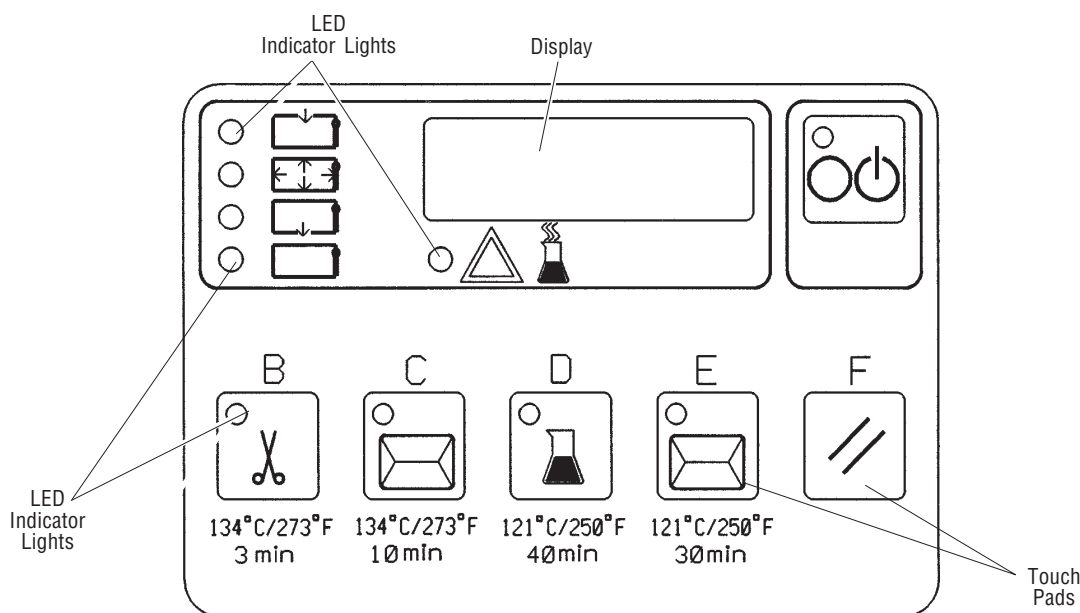


Figure 3B-1  
Control Panel

- **RESET** - pressing this touch pad during a cycle will abort the cycle. Pressing this touch pad when not in a cycle will return the control program to its original wait state.
- **Display Area** - this area features an electroluminescent display for the presentation of all alpha-numeric messages (i.e., error codes, times, date).
- **CONDITION, STERILIZE, EXHAUST, COMPLETE, WARNING - HOT LIQUIDS** - these areas all have corresponding indicator lights which inform the operator of the state of a given cycle.

### 3B.1.2 Operating Instructions and Diagnostic Codes Label (Figure 3B-2)

This label features a brief outline of the operating instructions for the sterilizer and a list of all diagnostic codes which may be displayed on the control panel as the result of an abnormal condition.

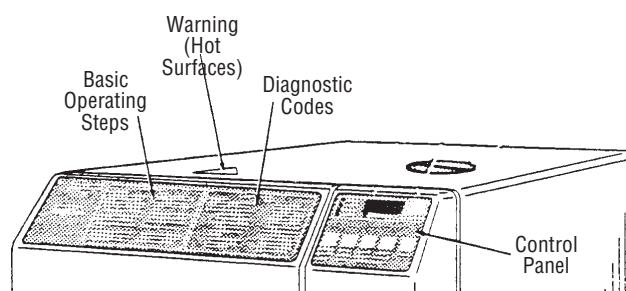


**Figure 3B-2**  
Operating Instructions and Diagnostic Codes Label Location

### 3B.1.3 Miscellaneous Features (Figure 3B-3)

The STERIS Tabletop Steam Sterilizer features various safety and operating components on the rear and front panels of the unit. A brief list and description of these components follow:

- **RESET Rocker Switch** - pressing the RESET rocker switch enables AC Power to the unit (rear panel).
- **OFF Rocker Switch** - pressing the OFF rocker disables AC Power to the unit (rear panel).
- **Reservoir Overflow Tube** - releases any excess water from the reservoir to avoid overfilling (rear panel). An extension tube (not by STERIS) can be attached to the overflow tube and routed to a drain to prevent water from laying on the counter in the event of an overflow.
- **Safety Valve** - releases excess pressure from the sterilizer chamber (rear panel).
- **Chamber Pressure Gauge** - displays the current pressure inside the chamber (0-60 psig). If this pressure gets too high, it is released through the safety valve (rear panel, see Figure 3B-3).

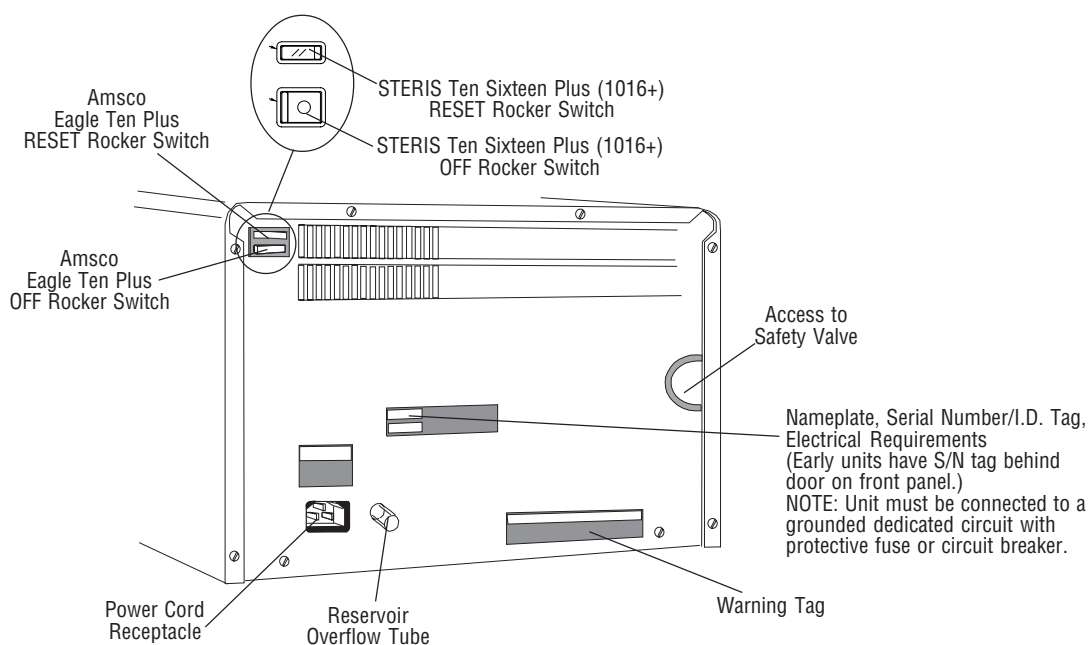


**Figure 3B-3**  
STERIS Tabletop Steam Sterilizer (Rear View)

*NOTE: Unit must be connected to a grounded dedicated circuit with protective fuse or circuit breaker.*

- **Printer** (optional) - records all cycle data on 5.72 cm (2-1/4") wide, single-ply thermal paper (see Figure 3B-4). See Section 7.14 for paper ordering information and Section 5.1.4.4 for paper reloading information.

```

=====
=  READY TO UNLOAD  =
= RESET FOR NEXT CYCLE=
=====

UNLOCKED 13:10:49 53c
LOCKED   13:12:44 49c

=====
== UNWRAPPED ==
=====
CYCLE START AT 13:12:50
               ON 3/02/90

CYCLE COUNT      5845
OPERATOR -----
STERILIZER -----

STERILIZE TEMP    132c
STERILIZE TIME    3 min
DRY TIME          60 min

PHASE    TIME    TEMP
-----
Fill     13:13:05 57c
Condition 13:13:57 72c
Condition 13:16:11 100c
Sterilize 13:22:54 132c
Sterilize 13:23:54 132c
Sterilize 13:24:55 133c
Sterilize 13:25:55 132c
Exhaust  13:25:56 132c

+++++
OPEN DOOR 1/4" and WAIT
RECOMMENDED DRY TIME.

```

Figure 3B-4  
Sample Printout

*NOTE: The dry phase of the cycle may be terminated at any time during its 60-minute length by pressing ON/STANDBY. A tone sounds at 30, 45, and 60 minutes during the drying phase, prompting the operator to terminate drying, if desired. At the end of 60 minutes, the control signals the end of the cycle and displays "donE."*

## 3B.2 PREPARING UNIT FOR INITIAL USE

This 13-step procedure should be followed closely to ensure proper set up and operation of the sterilizer.

1. Open the sterilizer door (push handle in and slide upward) and remove all chamber contents: trays, fuses, paper (units with printer), and power cord (Figure 3B-5).
2. Unwrap the loading trays and power cord.
3. Carefully remove bottom shelf from inside the chamber and verify that the filter is connected to the fill port and is resting on the bottom of the chamber (Figure 3B-6).

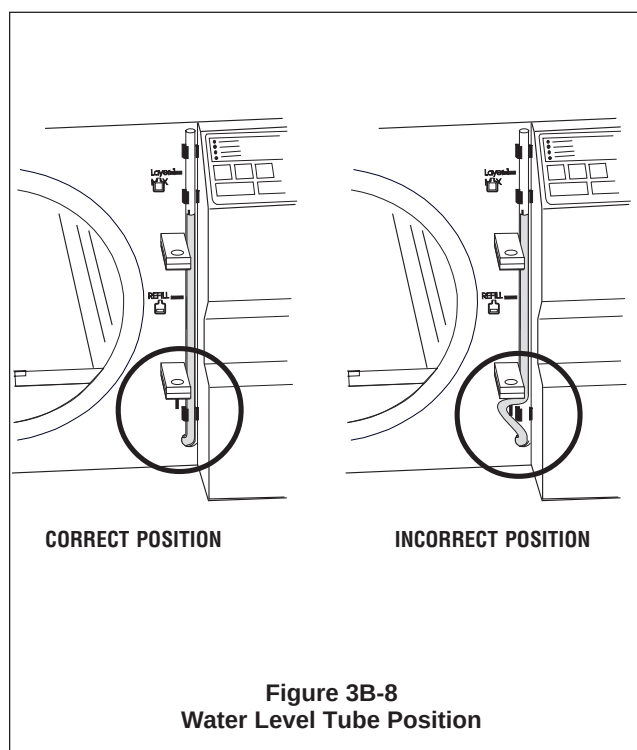
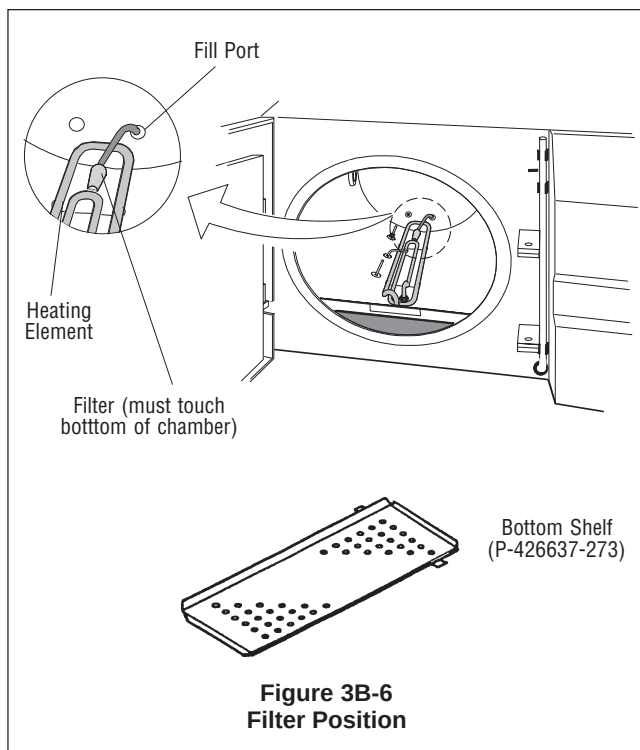
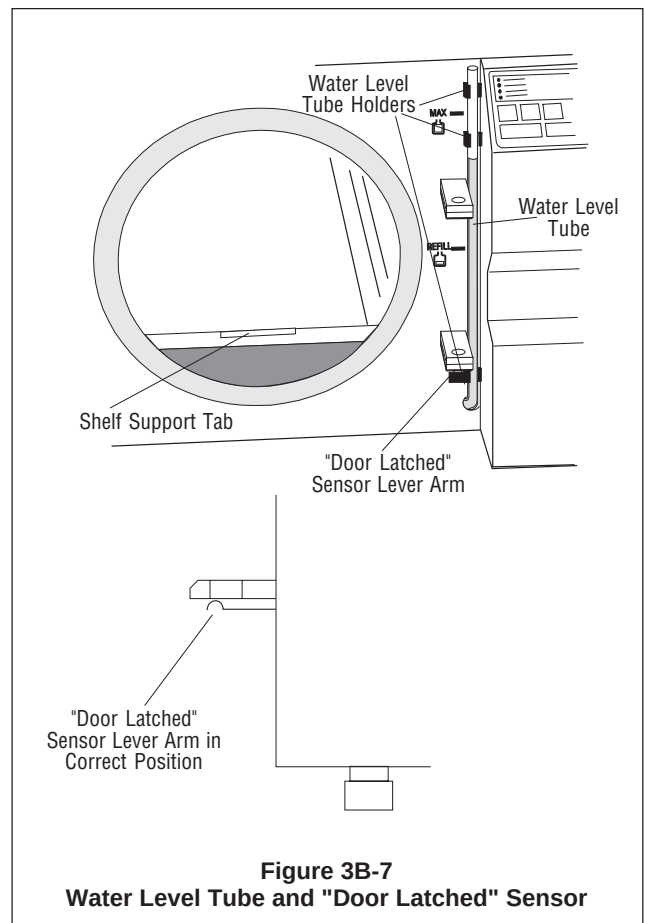
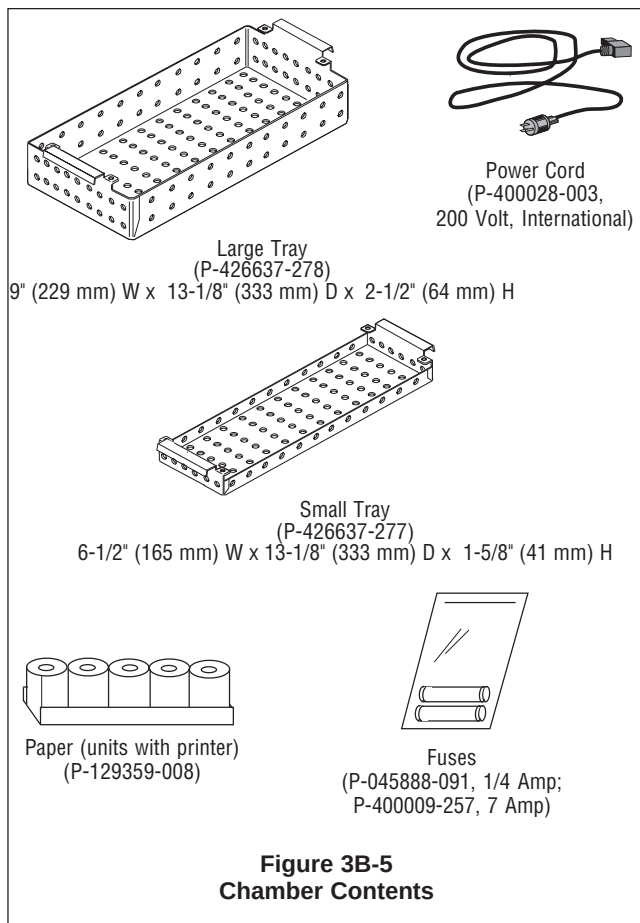


**WARNING - PERSONAL INJURY HAZARD:**  
To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.



**WARNING - PERSONAL INJURY HAZARD:**  
Proper functioning of the "Door Latched" sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting a cycle. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.

4. Verify that the water level tube is in an upright position and secure in its holders (Figure 3B-7 and Figure 3B-8). Make sure that water level tube is not contacting or interfering with the "Door Latched" sensor lever arm.



5. Replace bottom shelf and make sure the front edge of the shelf is inserted into tab for shelf support (see Figure 3B-7). Close and lock the chamber door (push handle in and slide downward).
6. Attach the female end of the power cord to the rear of the sterilizer (Figure 3B-3).
7. Plug the male end of the power cord into a dedicated, properly grounded electric outlet of the voltage and current specified on the serial number/ID nameplate (located on rear or front panel of sterilizer, see Figure 3B-3).
8. Press the RESET rocker switch on the rear of the sterilizer (Figure 3B-9). The front panel display will alternate between OFF and time of day (see Figure 3B-10). The optional printer will print "POWER ON" (see Figure 3B-11).
9. Press the ON/STANDBY touch pad and verify that the indicator light turns on and TIME is displayed (see Figure 3B-12). The heaters will begin to cycle to preheat the chamber. The optional printer will print "CONTROL ON" (see Figure 3B-11).
10. Set the correct time and date (see *Setting Temperature Units and Time/Date* in Section 5).

**CAUTION - POSSIBLE EQUIPMENT DAMAGE:**  
To avoid equipment damage, use deionized or distilled water ONLY for filling reservoir and cleaning.

**WARNING - PERSONAL INJURY HAZARD:**  
Do not overfill reservoir. To avoid slippery conditions and possible load contamination, immediately wipe up all spillage resulting from overfilling reservoir. (Reservoir overflow tube exits on back of unit.)

11. Remove the water reservoir cover (see Figure 2-1) and slowly fill reservoir with distilled or deionized water (minimum resistivity of 1 megohm/cm) until water level in the water level tube is between RE-FILL and MAX indicators (Figure 3B-14). Reservoir capacity is approximately 1 gal (3.8 L). DO NOT OVERFILL. Replace the water reservoir cover.

*NOTE: Do not add water to reservoir when there is water in the chamber. This may cause an overflow situation during the next cycle.*

12. Verify that there are no Error Messages on the front panel display. If there are, consult Appendix A following Section 3C for corrective measures.

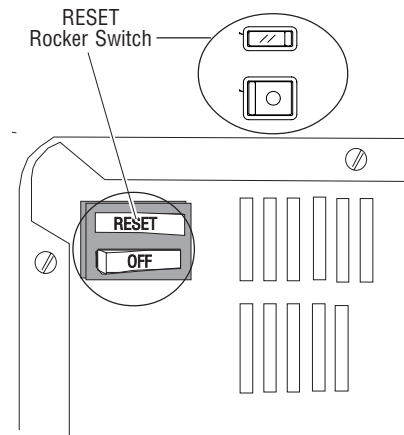


**Figure 3B-9**  
Reset and Off Switches

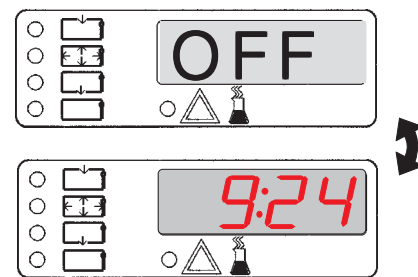


**Figure 3B-10**  
Display

|                           |      |          |
|---------------------------|------|----------|
| =====                     |      |          |
| P O W E R   O N           |      |          |
| =====                     |      |          |
| 3/05/98                   | AT   | 13:28:10 |
| 93910-121                 | VERS |          |
| 040698                    |      |          |
| =====                     |      |          |
| =   C O N T R O L   O N = |      |          |
| =====                     |      |          |
| 3/05/98                   | AT   | 13:28:26 |
| =====                     |      |          |

**Figure 3B-11**  
Sample Printout



**Figure 3B-12**  
ON/STANDBY

13. Press the ON/STANDBY touch pad and verify the indicator light is extinguished (see Figure 3B-13). The sterilizer should remain in the STANDBY mode (indicator light off) when the unit is not in use.

*NOTE: Initial odor (from insulation) will disappear after approximately 24 hours use.*

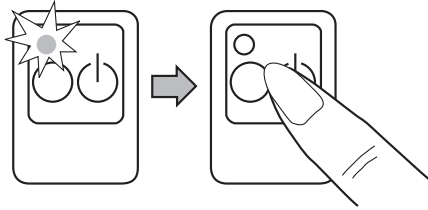


**Figure 3B-13  
ON/STANDBY**

### 3B.3 CONTROL MEASURES FOR VERIFYING STERILIZATION PROCESS

As part of the operator's verification of the sterilization process, biological indicators may be used to demonstrate that sterilization conditions have been met. To conform with AAMI standards, steam sterilizers should be tested weekly; however, STERIS recommends daily testing to minimize the impact of a possible recall. A live spore test utilizing *B. Stearothermophilus* is the most reliable form of biological monitoring.

### 3B.4 STERILIZING WRAPPED, UNWRAPPED, AND PACKED GOODS

**WARNING - PERSONAL INJURY HAZARD:** Sterilizer and trays will be hot after cycle is run. Always wear protective gloves and apron when removing a processed load. Protective gloves and apron should also be worn when reloading sterilizer following previous operation.

**WARNING - PERSONAL INJURY HAZARD:** To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.

**WARNING - PERSONAL INJURY HAZARD:** Proper functioning of the "Door Latched" sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting a cycle. Do not start a cycle if the sensor arm is out of position.

**WARNING - FIRE HAZARD:** When sterilizing wrapped goods, do not allow pouches or wraps to touch chamber wall.

**IMPORTANT:** Should an abnormal cycle condition occur, it will be displayed as indicated in Appendix A, Error Code Troubleshooting Chart.

*Unwrapped goods are intended for immediate use following sterilization. Unwrapped items must not be stored for later use.*

#### 3B.4.1 Preuse Checkout Procedure

1. Prior to the first cycle of the day (be sure the chamber is not hot), wipe out the cooled chamber using a clean cloth with deionized or distilled water. Dry the chamber with a lint-free cloth. If the chamber needs cleaning, refer to Section 5 ("Daily").
2. Verify that the water reservoir is full (water level should be between REFILL and MAX indications on the water level tube, Figure 3B-14). If needed, slowly add distilled or deionized water (minimum resistivity of 1 megohm/cm). Do not overfill. Replace the water reservoir cover.
3. Verify that the water level tube is in an upright position and secure in its holders. Make sure that water level tube is not contacting or interfering with the "Door Latched" sensor lever arm.
4. Verify that the "Door Latched" sensor lever arm is in the correct position and that the sensor is operating properly. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.
5. Without closing the chamber door, press the ON/STANDBY touch pad; verify that the indicator light is ON.

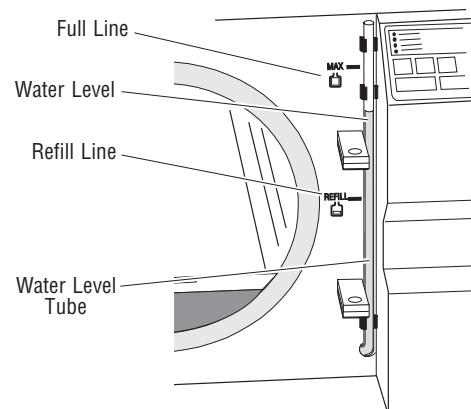


**Figure 3B-14  
Filling Reservoir**

### 3B.4.2 Preparation

**⚠ WARNING - STERILITY ASSURANCE HAZARD:** This sterilizer is not designed to process dental handpieces or lumens.

1. Use freshly laundered 140 thread count muslin (or equivalent)\*. This helps prevent superheating and provides longer life of the textiles.
2. Limit the size and density of each muslin pack. This ensures complete steam permeation, and assists drying.
3. Limit the size and density of wrapped instrument sets to assist in minimizing “wet pack” problems during post-sterilization.
4. Do not stack or nest utensils unless they are separated by muslin (or equivalent)\*.
5. Use two double-thickness 140 thread count muslin (or equivalent)\* wrappers for surgical supplies. This provides protection after sterilization.

\* Muslin of 140 thread count is the present standard for steam sterilization. The manufacturers of other materials should show data that indicates their product is equivalent to the muslin profile in steam sterilization, drying, and sterility maintenance.

### 3B.4.3 Loading the Trays and Chamber

**⚠ WARNING - EXPLOSION HAZARD:** Do not operate this sterilizer in the presence of flammable compounds.

**⚠ WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading or cleaning.

**⚠ WARNING - FALL HAZARD:** To prevent falls, keep floors dry by immediately wiping up any spilled liquids or condensation in sterilizer loading or unloading area.

**⚠ WARNING - STERILITY ASSURANCE HAZARD:** This sterilizer is not designed to process dental handpieces or lumens.

The following procedure must be followed closely when sterilizing wrapped, unwrapped, and packed goods.

*NOTE: When positioning the loading trays, the small tray must always be used under the large tray even if the large tray is the only one containing items to be sterilized.*

1. Place items to be sterilized into the tray loosely to allow space for proper air removal and steam penetration throughout the load (Figure 3B-15). Pay special attention to the following:
  - a. Place all fabric packs on edge and arrange packs for maximum steam exposure.
  - b. Place items that might entrap air or water, such as bowls or pitchers, upside down or on edge so they will be sterilized and dried properly (i.e., they will not “catch” water during the drying process).
  - c. Place instrument sets, unwrapped or wrapped, flat in the tray.
  - d. Remove any caps from empty jars, canisters, and nonporous containers and place them upside down in the tray to facilitate sterilization and drying.
  - e. Place hard goods (i.e., metallic instruments) on the bottom when processing mixed loads combining fabrics and hard goods. This prevents wetting of wrapped packs from condensed water dripping from the hard goods load.
2. Carefully insert trays into the sterilizing chamber (Figure 3B-15).
3. Close and lock the chamber door. Verify the door is locked and ready for operation.

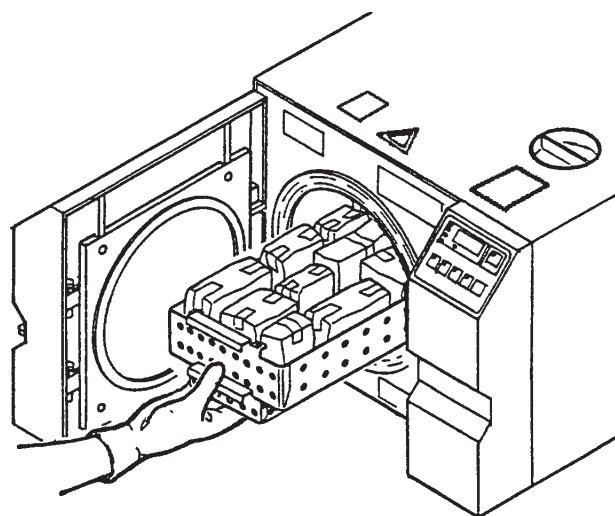


**Figure 3B-15**  
**Loading Sterilizer Chamber**

### 3B.4.4 Initiating a Sterilization Cycle (Nonliquids)

*NOTE: Pressing the RESET touch pad while a cycle is in progress will always abort the cycle. If a cycle is aborted, the load must be reprocessed.*

The following procedure is used to initiate a sterilization cycle for nonliquid goods. See Table 3B-1 for preprogrammed times and temperatures for various load types and Figure 3B-16 for touch pad locations.

1. After the door is closed, press the appropriate cycle touch pad (UNWRAPPED, WRAPPED, or PACKS). The corresponding indicator light illuminates. Display will read "FILL" (it takes 1 to 2 minutes to fill). See Figure 3B-16.
2. Next, the optional printer will print relevant data in the format shown in Figure 3B-17.

```

LOCKED      8:38:03  52C

=====
==== W R A P P E D ====
=====
CYCLE START AT  8:38:22
                ON  9/11/97

CYCLE COUNT      1498
OPERATOR _____
STERILIZER  _____

STERILIZE TEMP    134C
STERILIZE TIME    10 min
DRY TIME          60 min*

PHASE      TIME      TEMP
-----
Fill       8:38:37    59C
  
```

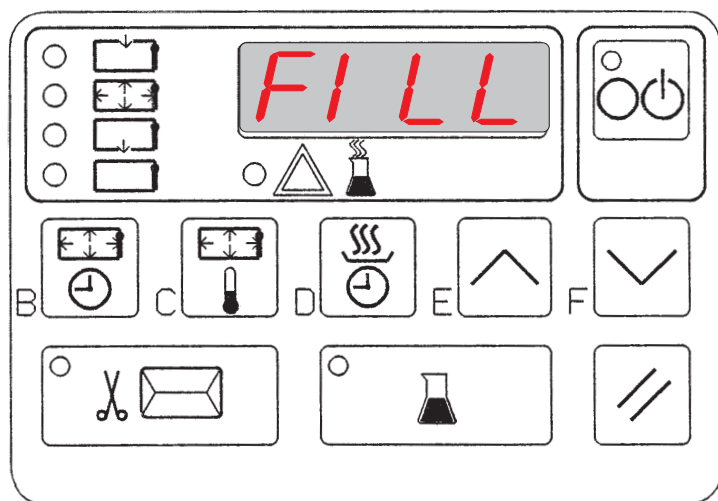


**Figure 3B-16**  
**Control Panel**

*\*The dry phase of the cycle may be terminated at any time during its 60-minute length by pressing ON/STANDBY. A tone sounds at 30, 45, and 60 minutes during the drying phase, prompting the operator to terminate drying, if desired. At the end of 60 minutes, the control signals the end of the cycle and displays "donE."*

**Figure 3B-17**  
**Sample Printout**

| CYCLE TYPE         | RECOMMENDED LOAD*                                                                                                                                                                             | CONTROL SETTINGS         |               |                      |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|----------------------|
|                    |                                                                                                                                                                                               | STERILIZE CYCLE SETTINGS |               | RECOMMENDED DRY TIME |
|                    |                                                                                                                                                                                               | STERILIZE TIME           | TEMPERATURE   |                      |
| <b>PACKED</b>      | Fabric packs: maximum 1050 g                                                                                                                                                                  | 30 minutes               | 121°C (250°F) | 30 minutes           |
| <b>WRAPPED</b>     | Wrapped instrument pack: one pack, maximum weight 1300 g. Paper-peel pouches, maximum five pouches, one instrument per pack, total maximum weight 500 g (no lumens and no dental handpieces). | 10 minutes               | 134°C (273°F) | 45 minutes           |
| <b>UNWRAPPED**</b> | Unwrapped metal instrument tray (no lumens and no dental handpieces)                                                                                                                          | 3 minutes                | 134°C (273°F) | --                   |
| <b>LIQUID</b>      | Vented borosilicate glass (500 mL or smaller)                                                                                                                                                 | 30 minutes               | 121°C (250°F) | 30 minutes           |

\* If processing mixed loads, always use the longer exposure time setting.

\*\* The unwrapped cycle is typically used for nonporous, unwrapped instruments for immediate use only.

**Table 3B-1**

**Preprogrammed Sterilize Times and Temperatures with Recommended Dry Times and Minimum Pressures**

### 3B.5 PHASES OF THE NONLIQUID STERILIZATION CYCLE

*NOTE: If the cycle does not start when the appropriate touch pad is pressed, consult Section 5.4, Troubleshooting and Error Code Chart.*

After successfully starting the cycle, the STERIS Ten Sixteen (1016) automatically begins the sterilization process (CONDITION, STERILIZE, EXHAUST, DRY, and COMPLETE phases).

A brief description of each stage in this process follows:

#### 1. Condition

During the CONDITION phase, the CONDITION indicator light illuminates and the chamber heater turns on. The temperature is then displayed on the front panel display and rises until the preset sterilization temperature is reached.

- i If the chamber is cold, allow up to 30 minutes for chamber to reach sterilization temperature.
- ii If the chamber is hot, allow up to 20 minutes for chamber to reach sterilization temperature.

*NOTE: The sterilizer is programmed to reach a preset sterilization temperature of 121°C (250°F) or 132°C (270°F), depending on the cycle selected, within 20 minutes. If sterilization temperature is not reached during 20 minutes of conditioning, the control holds and waits 15 minutes for rise to temperature set point. If after the additional wait time, the chamber temperature has not reached 121°C (250°F) or 132°C (270°F), depending on the cycle selected, the control aborts the cycle. If this occurs, see Section 4 "Troubleshooting."*

## 2. Sterilize

The STERILIZE indicator light illuminates once the chamber attains the temperature specified through the program control (the timer then counts downward from the preset exposure time to zero). During the STERILIZE phase, temperature and time remaining in phase are displayed alternately on the front panel display once sterilization temperature is achieved. See Figure 3B-18.

NOTE: Temperature may rise 1.5°-3°C above the preset cycle temperature parameter.

The EXHAUST indicator light illuminates once the sterilize phase is complete.

## 3. Exhaust

During the EXHAUST phase, the heater turns off, the chamber exhausts, and the chamber temperature is shown on the front panel display. The buzzer sounds for 4 seconds when EXHAUST is complete; "door" is shown on the front panel display and the buzzer sounds every minute until the door is opened (see Figure 3B-19). Be sure chamber pressure is at zero prior to opening.

At the end of the EXHAUST phase, open the door (push in and lift the handle), then push the door in until it rests against the door latching mechanism (DO NOT CLOSE DOOR) as pictured in Figure 3B-20. The dry heaters will automatically turn on and begin DRY phase.

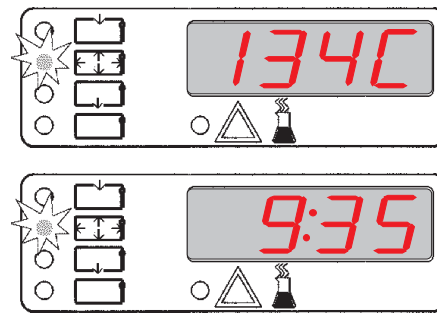


Figure 3B-18  
Sterilizer "STERILIZE" Phase Display

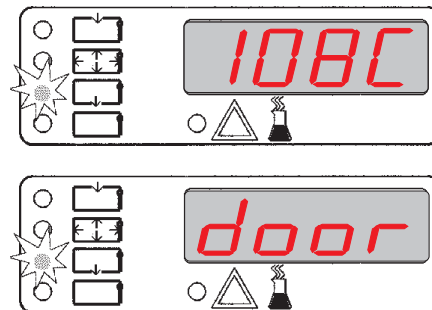


Figure 3B-19  
Sterilizer "EXHAUST" Phase Display

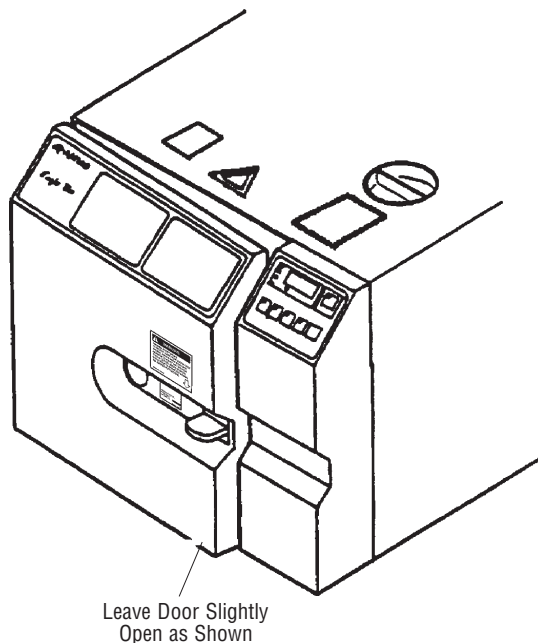


Figure 3B-20  
Door Ajar Following Exhaust Phase

#### 4. Dry

During the DRY phase, the phase time is shown on the front panel display and counts upward (min:sec) for 60 minutes (Figure 3B-21). A tone will sound at 30-, 45-, and 60-minute intervals. The operator may terminate the DRY phase at any time by pressing the ON/STANDBY touch pad. When the touch pad is pressed, or 60 minutes has elapsed, "donE" appears in the front panel display indicating the cycle is complete.

#### 5. Complete

Once the DRY phase is complete, the COMPLETE indicator light illuminates and "donE" appears in the front panel display (Figure 3B-22). Pressing the RESET touch key completes the cycle and the time of day is shown in the front panel display.

Finally, remove the tray containing the sterilized items from the chamber (Figure 3B-23). (Remember, protective gloves are necessary when removing items from the sterilizer.)

Visually check outside of wrapper for dryness. A pack or instrument tray is considered unacceptable if there are water droplets or visible moisture on the exterior of the package or on the tape used to secure it.

Transfer to surface which is well padded with fabric to prevent condensation. Do not place on a cold surface. Be sure there is no air conditioning or cold air vents in close proximity.



Figure 3B-21  
Sterilizer "DRY" Phase Display

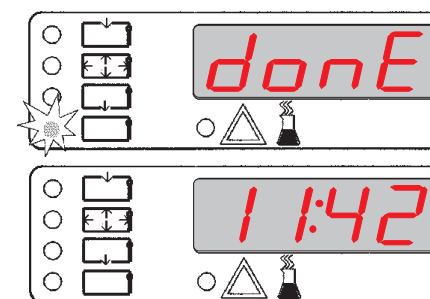


Figure 3B-22  
Sterilizer "COMPLETE" Phase Display

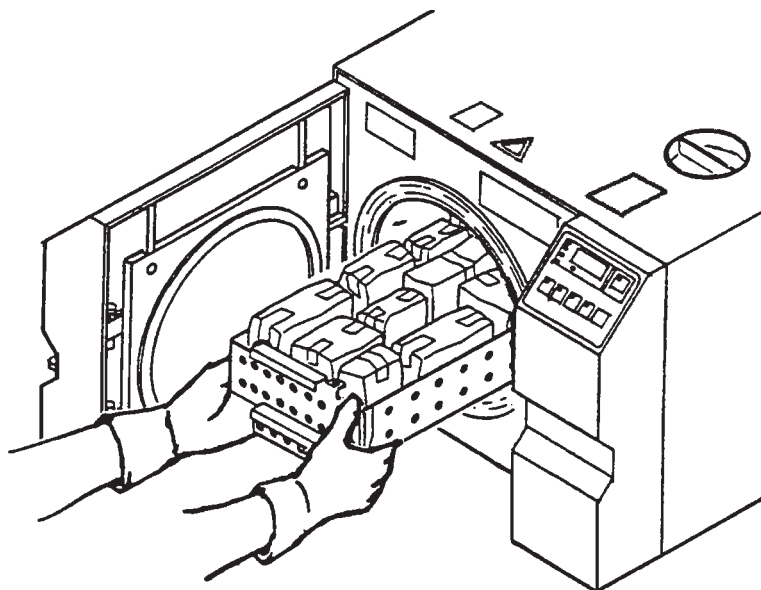


Figure 3B-23  
Unloading Sterilizer

Remove packs or instrument trays from padded surface when they have reached ambient (room) temperature. The optional printer will print all information pertinent to the cycle until the cycle is complete (Figure 3B-24).

*NOTE: A small puddle of water may be found on the counter when the door is opened at the end of the cycle. This puddling is due to condensation of steam on the door and gasket. Use a clean, absorbent cloth to immediately wipe any water in or around the sterilizer after each use.*

```

=====
==== W R A P P E D ====
=====
CYCLE START AT 12:42:46
                ON 2/09/98

CYCLE COUNT      0081
OPERATOR _____
STERILIZER _____

STERILIZE TEMP    132c
STERILIZE TIME    10 min
DRY TIME          60 min

PHASE      TIME      TEMP
-----
Fill       12:43:00   33c
Condition  12:43:11   35c
Condition  12:55:59  100c
Sterilize  13:07:14  132c
Sterilize  13:10:14  132c
Sterilize  13:13:15  132c
Sterilize  13:16:16  132c
Exhaust    13:17:17  133c

+++++
OPEN DOOR 1/4" and WAIT
RECOMMENDED DRY TIME.
+++++

UNLOCKED  13:21:27  99c
Drying    13:21:28  97c
Complete  13:51:36  81c
-----

MAX Temperature  133c
Min Temperature  132c

Condition Time    23:54
Sterilize Time    10:01
Exhaust Time      4:04
Dry Time          30:02 *
-----
TOTAL CYCLE      1:08:29

=====
=  READY TO UNLOAD  =
= RESET FOR NEXT CYCLE=
=====

```

**Figure 3B-24**  
**Sample Printout**  
**(end of cycle)**

*\*The dry phase of the cycle may be terminated at any time during its 60-minute length by pressing ON/STANDBY. A tone sounds at 30, 45, and 60 minutes during the drying phase, prompting the operator to terminate drying, if desired. At the end of 60 minutes, the control signals the end of the cycle and displays "done."*

### 3B.6 STERILIZING LIQUIDS

Liquid sterilization is accomplished by utilizing a specially designed sterilization cycle.

**IMPORTANT:** Should an abnormal cycle condition occur, it will be displayed as indicated in Appendix A, Error Code Troubleshooting Chart.



**WARNING - BURN HAZARD:** This sterilizer is not designed to process flammable liquids.



**WARNING - EXPLOSION HAZARD:** Do not operate this sterilizer in the presence of flammable compounds.



**WARNING - BURN HAZARD:** Sterilizer and trays will be hot after cycle is run. Always wear protective gloves and apron when removing a processed load. Protective gloves and apron should also be worn when reloading sterilizer following previous operation.



**WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading or cleaning.



**WARNING - STERILITY ASSURANCE HAZARD:** It is inappropriate to sterilize liquids intended for direct patient contact.



**WARNING - PERSONAL INJURY HAZARD:** Use only vented closures - do not use screw caps or rubber stoppers with crimped seals.



**WARNING - PERSONAL INJURY HAZARD:** Use only Type I borosilicate glass bottles - do not use ordinary glass jugs or any container not designed for sterilization.



**WARNING - PERSONAL INJURY HAZARD:** Open door slowly at the end of a liquid sterilization cycle. Do not allow hot bottles to be jolted. This can cause bottle explosions! Do not move bottles if any boiling or bubbling is present.



**WARNING - PERSONAL INJURY HAZARD:** Allow bottles to cool to touch before attempting to move them from sterilizer shelf or tray(s) to the storage area.



**WARNING - PERSONAL INJURY HAZARD:** To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.



**WARNING - PERSONAL INJURY HAZARD:** Proper functioning of the "Door Latched" sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting a cycle. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.



**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** If media is processed, bottles and tubes should contain no more than 1/2 the total volume of the container. When processing water bottles and test tubes, the bottles and tubes should contain no more than 3/4 the total volume of the container. Chamber, filter, and water level probe should be cleaned daily when processing media.



**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** Sterilization of chloride-containing solutions can cause chamber corrosion and is not recommended by the manufacturer. However, if chloride-containing solutions must be processed, clean the chamber, filter, and water level probe after each use.

### 3B.6.1 Preuse Checkout Procedure

**WARNING - PERSONAL INJURY HAZARD:** To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.

**WARNING - PERSONAL INJURY HAZARD:** Proper functioning of the "Door Latched" sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting a cycle. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.

**WARNING - PERSONAL INJURY HAZARD:** Do not overfill reservoir. To avoid slippery conditions and possible load contamination, immediately wipe up all spillage resulting from overfilling reservoir. (Reservoir overflow tube exits on back of unit.)

1. Prior to the first cycle of the day (be sure the chamber is not hot), wipe out the cooled chamber using a clean cloth with deionized or distilled water. Dry the chamber with a lint-free cloth. If the chamber needs cleaning, refer to Section 5 ("Daily").
2. Verify that the water reservoir is full (water level should be between REFILL and MAX indications on the water level tube, Figure 3B-14). If needed, slowly add distilled or deionized water (minimum resistivity of 1 megohm/cm). Do not overfill. Replace the water reservoir cover.
3. Verify that the water level tube is in an upright position and secure in its holders. Make sure that water level tube is not contacting or interfering with the "Door Latched" sensor lever arm.
4. Verify that the "Door Latched" sensor lever arm is in the correct position and that the sensor is operating properly. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.
5. Without closing the chamber door, press the ON/STANDBY touch pad; verify that the indicator light is ON.

### 3B.6.2 Loading the Tray and Chamber

**WARNING - STERILITY ASSURANCE HAZARD:** It is inappropriate to sterilize liquids intended for direct patient contact.

The following procedure must be followed precisely when sterilizing liquids.

*NOTE: When positioning the loading trays, the small tray must always be used under the large tray even if the large tray is the only one containing items to be sterilized.*

1. Place items to be sterilized into tray allowing space for proper air removal and steam circulation between items (Figure 3B-25). Only use Type 1 borosilicate glass containers and do not overload the trays (Figure 3B-26). Do not squeeze bottles against each other.
2. Carefully insert trays into the sterilizing chamber.
3. Close and lock the chamber door.

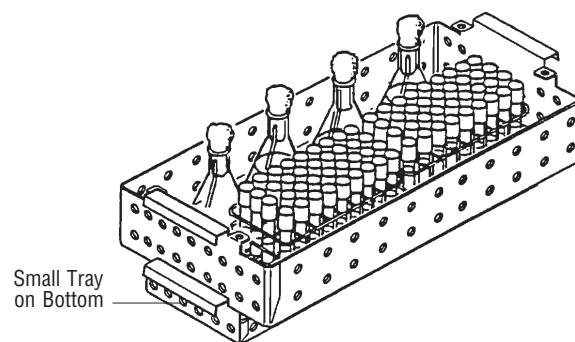
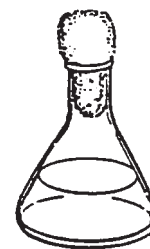


**Figure 3B-25**  
**Loading Trays - Liquid Cycle**



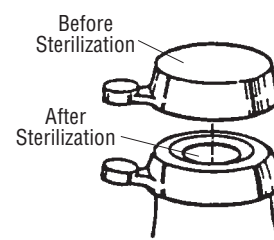
Vented Test  
Tube Caps



Cotton  
Stoppers



Borosilicate  
Glass Bottles



Disposable  
Vented Closures

**Figure 3B-26**  
**Proper Liquid Containers and Vented Closures**

3B.6.3 Initiating a Sterilization Cycle (Liquid)

**! WARNING - STERILITY ASSURANCE HAZARD:** It is inappropriate to sterilize liquids intended for direct patient contact.

*NOTE: Pressing the RESET touch pad while a cycle is in progress will always abort the cycle. If a cycle is aborted, the load must be reprocessed.*

The following procedure is used to initiate a sterilization cycle for liquid goods. See Table 3B-2 for pre-programmed time and temperature. See Figure 3B-1 for touch pad locations.

- 1. After the door is closed, press the appropriate cycle touch pad (LIQUID). The corresponding indicator light illuminates. Display will read "FILL" (it takes 1 to 2 minutes to fill). See Figure 3B-27.
- 2. Next, the optional printer will print relevant data in the format shown in Figure 3B-28.

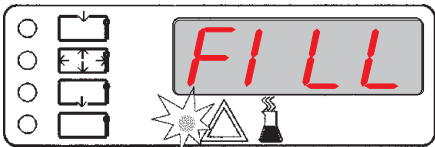


Figure 3B-27  
Display

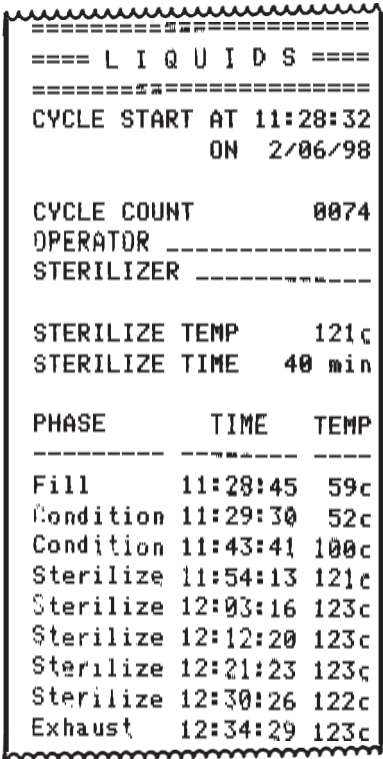


Figure 3B-28  
Sample Printout

| FLASK SIZE           | STERILIZE CYCLE SETTINGS      |               | MINIMUM*<br>PRESSURE<br>bar (psig) | RECOMMENDED<br>DRY TIME<br>(min.) |
|----------------------|-------------------------------|---------------|------------------------------------|-----------------------------------|
|                      | EXPOSURE<br>TIME<br>(minutes) | TEMPERATURE   |                                    |                                   |
| 500 mL or<br>smaller | 40                            | 121°C (250°F) | 1.03 (15)                          | 10<br>(cool time)                 |

\* This pressure reading is the minimum necessary to achieve sterility. Actual readings may be higher.

Table 3B-2  
Pre-programmed Exposure Time and Temperature Setting - Liquid Cycle

## 3B.7 PHASES OF THE LIQUID CYCLE

*NOTE: If the cycle does not start when the appropriate touch pad is pressed, consult Appendix A, Troubleshooting.*

After successfully starting the cycle, the STERIS Ten Sixteen automatically begins the sterilization process (CONDITION, STERILIZE, EXHAUST, COOL, and COMPLETE phases).

A brief description of each stage in this process follows:

### 1. Condition

During the CONDITION phase, the CONDITION and WARNING - HOT LIQUIDS indicator lights illuminate and the chamber heater turns on (see Figure 3B-29). The temperature is then displayed on the front panel display and rises until the preset sterilization temperature is reached.

- i If the chamber is cold, allow up to 30 minutes for chamber to reach sterilization temperature.
- ii If the chamber is hot, allow up to 20 minutes for chamber to reach sterilization temperature.

*NOTE: The sterilizer is programmed to reach a preset sterilization temperature of 121°C (250°F) or 132°C (270°F), depending on the cycle selected, within 20 minutes. If sterilization temperature is not reached during 20 minutes of conditioning, the control holds and waits 15 minutes for rise to temperature set point. If after the additional wait time, the chamber temperature has not reached 121°C (250°F) or 132°C (270°F), depending on the cycle selected, the control aborts the cycle. If this occurs, see Section 4 "Troubleshooting."*

### 2. Sterilize

The STERILIZE indicator light illuminates once the chamber attains the temperature specified through the program control (the timer then counts downward from the preset exposure time to zero). During the STERILIZE phase, temperature and time remaining in phase are displayed alternately on the front panel display once sterilization temperature is achieved (Figure 3B-30).

*NOTE: Temperature may rise 1-1/2° to 3°C (3° to 5°F) above preset cycle temperature parameter.*

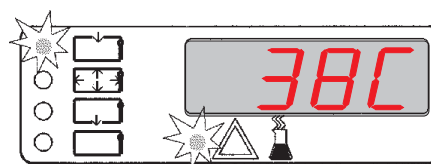


**Figure 3B-29**  
**Sterilizer "CONDITION" Phase Display**

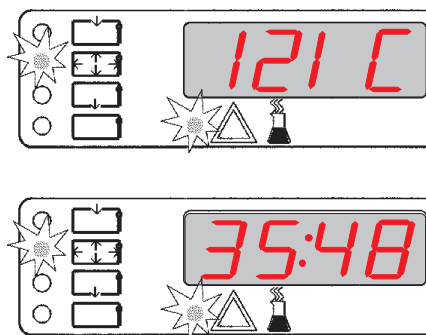


**Figure 3B-30**  
**Sterilizer "STERILIZE" Phase Display**

### 3. Exhaust

The EXHAUST indicator light illuminates once the sterilizer phase is completed. During the EXHAUST phase, the heater turns off, the chamber exhausts, and the chamber temperature is shown on the front panel display (Figure 3B-31).

The buzzer sounds for 4 seconds when EXHAUST is complete; "door" is shown on the front panel display and the buzzer sounds every minute until the door is opened. Be sure chamber pressure is at zero prior to opening.

Open the door (push in and lift the handle), then push the door in until it rests against the door latching mechanism (DO NOT CLOSE DOOR) as pictured in Figure 3B-20.

### 4. Cool

During the COOL phase, the phase time is shown on the front panel display and counts upward (10 min.) until the COOL time automatically specified by program control is achieved (Figure 3B-32).

### 5. Complete

Once the COOL phase is complete, the COMPLETE indicator light illuminates and "done" appears in the front panel display (Figure 3B-33). Pressing the RESET touch key completes the cycle and the time of day is shown in the front panel display.

Finally, remove the trays containing sterilized items from the chamber (Figure 3B-34). (Remember, protective gloves and a face mask are necessary when removing items from the sterilizer.)

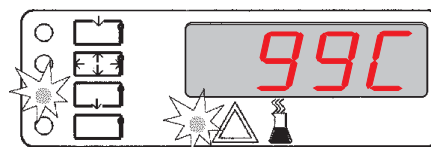


Figure 3B-31  
Sterilizer "EXHAUST" Phase Display

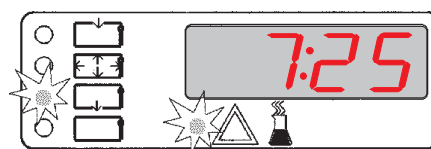


Figure 3B-32  
Sterilizer "COOL" Phase Display

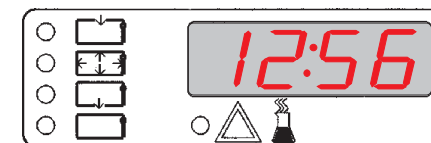
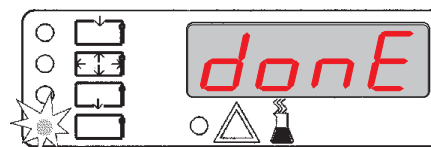


Figure 3B-33  
Sterilizer "COMPLETE" Phase Display

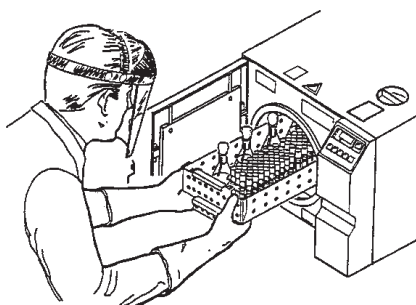


Figure 3B-34  
Unloading Liquids

**⚠ WARNING - STERILITY ASSURANCE HAZARD:** It is inappropriate to sterilize liquids intended for direct patient contact.

The optional printer will print all information pertinent to the cycle until the cycle is complete (Figure 3B-35).

*NOTE: A small puddle of water may be found on the counter when the door is opened at the end of a cycle. This puddling is due to condensation of steam on the door and gasket. Use a clean, absorbent cloth to immediately wipe up any water in or around the sterilizer after each use.*

### 3B.8 LIQUID/MEDIA LOSS

**⚠ CAUTION - POSSIBLE EQUIPMENT DAMAGE:** If media is processed, bottles and tubes should contain no more than 1/2 the total volume of the container. When processing water bottles and test tubes, the bottles and tubes should contain no more than 3/4 the total volume of the container. Chamber, filter, and water level probe should be cleaned daily when processing media.

Certain biological media may boil more vigorously during slow exhaust because of vented closure being used, and/or ratio of liquid to volume of media container. If excessive liquid/media loss or if media spills are discovered in the bottom of chamber, proceed as follows:

1. Verify that media containers are not overly full. If uncertain about volume of media recommended per container, contact a STERIS Customer Account Representative.
2. Use appropriate vented closure for media being processed.
3. Certain liquid/media processes may require extended exhaust rates beyond standard EXHAUST phase. For additional information, contact a STERIS Customer Account Representative.

*NOTE: Chamber, filter, and water level probe should be cleaned daily when processing media. See Section 5 for cleaning instructions.*

|                               |          |      |
|-------------------------------|----------|------|
| =====                         |          |      |
| ==== L I Q U I D S ====       |          |      |
| =====                         |          |      |
| CYCLE START AT 13:82:82       |          |      |
| ON 2/16/99                    |          |      |
|                               |          |      |
| CYCLE COUNT                   | 1561     |      |
| OPERATOR                      | _____    |      |
| STERILIZER                    | _____    |      |
|                               |          |      |
| STERILIZE TEMP                | 121C     |      |
| STERILIZE TIME                | 48 min   |      |
|                               |          |      |
| PHASE                         | TIME     | TEMP |
| ----                          | -----    | ---- |
| Fill                          | 13:02:15 | 26C  |
| LOCKED                        | 13:02:16 | 26C  |
| Condition                     | 13:02:44 | 27C  |
| Condition                     | 13:11:21 | 100C |
| Sterilize                     | 13:15:17 | 121C |
| Sterilize                     | 13:24:20 | 122C |
| Sterilize                     | 13:33:23 | 122C |
| Sterilize                     | 13:42:26 | 122C |
| Sterilize                     | 13:51:29 | 122C |
| Exhaust                       | 13:55:32 | 122C |
| Exhaust                       | 14:00:34 | 98C  |
|                               |          |      |
| +++++ WARNING!! Hot Liquids!! |          |      |
| OPEN DOOR 1/4" and WAIT 10    |          |      |
| MINUTES TO COOL LOAD          |          |      |
| +++++                         |          |      |
|                               |          |      |
| UNLOCKED                      | 14:05:45 | 88C  |
| Cooling                       | 14:05:46 | 88C  |
| Complete                      | 14:15:41 | 63C  |
| -----                         | -----    | ---- |
|                               |          |      |
| MAX Temperature               | 122C     |      |
| Min Temperature               | 121C     |      |
|                               |          |      |
| Condition Time                | 12:28    |      |
| Sterilize Time                | 40:01    |      |
| Exhaust Time                  | 10:02    |      |
| Cooling Time                  | 10:00    |      |
| -----                         | ----     |      |
| TOTAL CYCLE                   | 1:13:25  |      |

**Figure 3B-35**  
**Sample Printout (end of cycle)**

# Section 3C: Operating Instructions

## STERIS Ten Sixteen Plus (1016+) and Amsco Eagle Ten + (International)

### 3C.0 GENERAL

The following procedures are intended to guide maintenance personnel when:

- (1) instructing operators in techniques designed to ensure optimum equipment performance; and
- (2) verifying the validity of operator complaints.

As a reminder for operators, a simplified version of the operating instructions can be found on a permanent plate mounted on the front panel of the unit. New operators should always use the supplied Operator Manual.

See Troubleshooting and Error Code Chart (Section 5) and Functional Description (Section 4) if this unit is not operating properly. Refer to Section 2, General Information, for capabilities of the unit.

### 3C.1 FEATURES

This section provides a brief description of the major features found on the STERIS Tabletop Steam Sterilizers (Plus Series).

#### 3C.1.1 Control Panel (Figure 3C-1)

The Control Panel features nine touch-sensitive pads which control all programmable functions of the STERIS Tabletop Steam Sterilizer (Plus Series) and

an electroluminescent display area. Brief descriptions of each touch key and the display area follow:



**WARNING - STERILITY ASSURANCE HAZARD:** It is inappropriate to sterilize liquids intended for direct patient contact.

- **ON/STANDBY** - pressing this touch pad places the unit in the ON (indicator light illuminated) or STANDBY (indicator light not illuminated) mode. When not in use, the unit should be in the STANDBY mode.
- **STER TIME SET** - pressing this touch pad (at the appropriate time) starts the "sterilizer time set" function. See "Operating Instructions" for more information.
- **STER TEMP SET** - pressing this touch pad (at the appropriate time) starts the "sterilizer temperature set" function. See "Operating Instructions" for more information.
- **DRY TIME SET** - pressing this touch pad (at the appropriate time) starts the "dry time set" function. See "Operating Instructions" for more information.
- **GRAVITY** - pressing this touch pad (at the appropriate time) starts the "gravity" sterilization cycle. See "Operating Instructions" for more information.

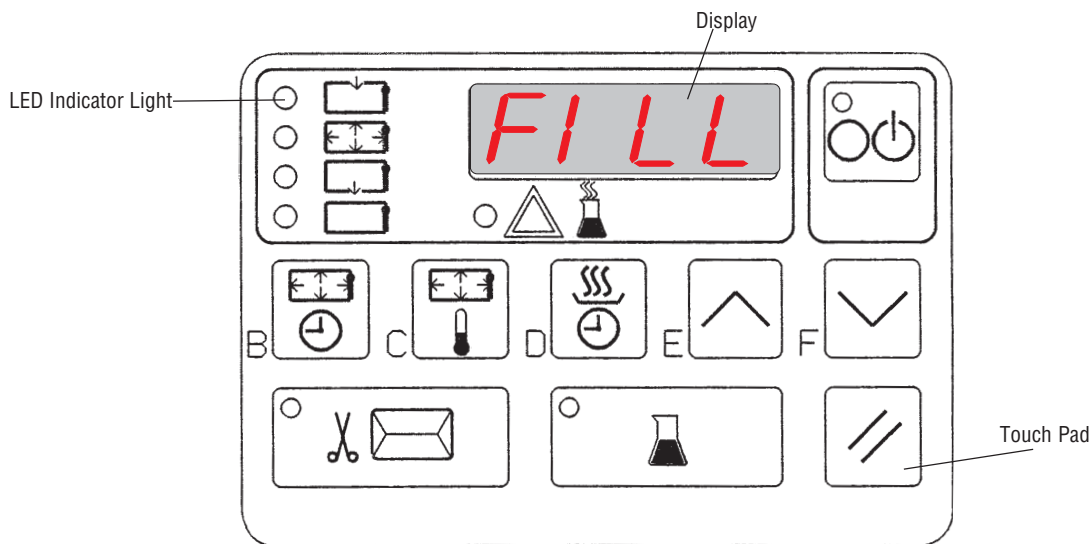


**Figure 3C-1**  
**Control Panel**

- **LIQUID** - pressing this touch pad (at the appropriate time) starts the "liquid" sterilization cycle. See "Operating Instructions" for more information.
- **RESET** - pressing this touch pad during a cycle will abort the cycle. Pressing this touch pad when not in a cycle will return the control program to its original wait state.
- **▲ & ▼** - pressing either of these touch pads will increase or decrease a selected parameter (e.g., sterilizer temperature, sterilizer time, time, date).
- **Display Area** - this area features an electroluminescent display for the presentation of all alphanumeric messages (i.e., error codes, times, date).
- **CONDITION, STERILIZE, EXHAUST, COMPLETE, WARNING - HOT LIQUIDS** - these areas all have corresponding indicator lights which inform the operator of the state of a given cycle.

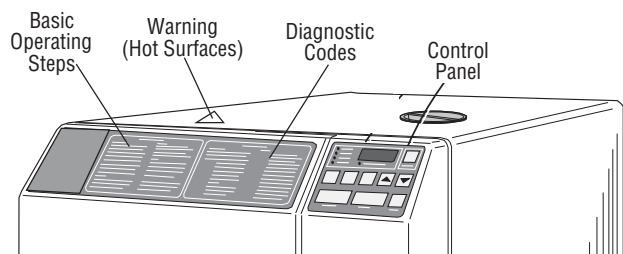


**Figure 3C-2**  
**Operating Instructions**  
**and Diagnostic Codes Label Location**

### 3C.1.2 Operating Instructions and Diagnostic Codes Label (Figure 3C-2)

This label features a brief outline of the operating instructions for the sterilizer and a list of all diagnostic codes which may be displayed on the control panel as the result of an abnormal condition.

### 3C.1.3 Miscellaneous Features (Figure 3C-3)

The STERIS Tabletop Steam Sterilizer (Plus Series) features various safety and operating components on the rear and front panels of the unit. A brief list and description of these components follow:

- **RESET Rocker Switch** - pressing the RESET rocker switch enables AC Power to the unit (rear panel).
- **OFF Rocker Switch** - pressing the OFF rocker disables AC Power to the unit (rear panel).
- **Reservoir Overflow Tube** - releases any excess water from the reservoir to avoid overfilling (rear panel). An extension tube (not by STERIS) can be attached to the overflow tube and routed to a drain to prevent water from lying on the counter in the event of an overflow.
- **Safety Valve** - releases excess pressure from the sterilizer chamber (rear panel).
- **Chamber Pressure Gauge** - displays the current pressure inside the chamber (0-60 psig). If this pressure gets too high (see Tables 3C-1 and 3C-2), it is released through the safety valve (rear panel, see Figure 3C-3).

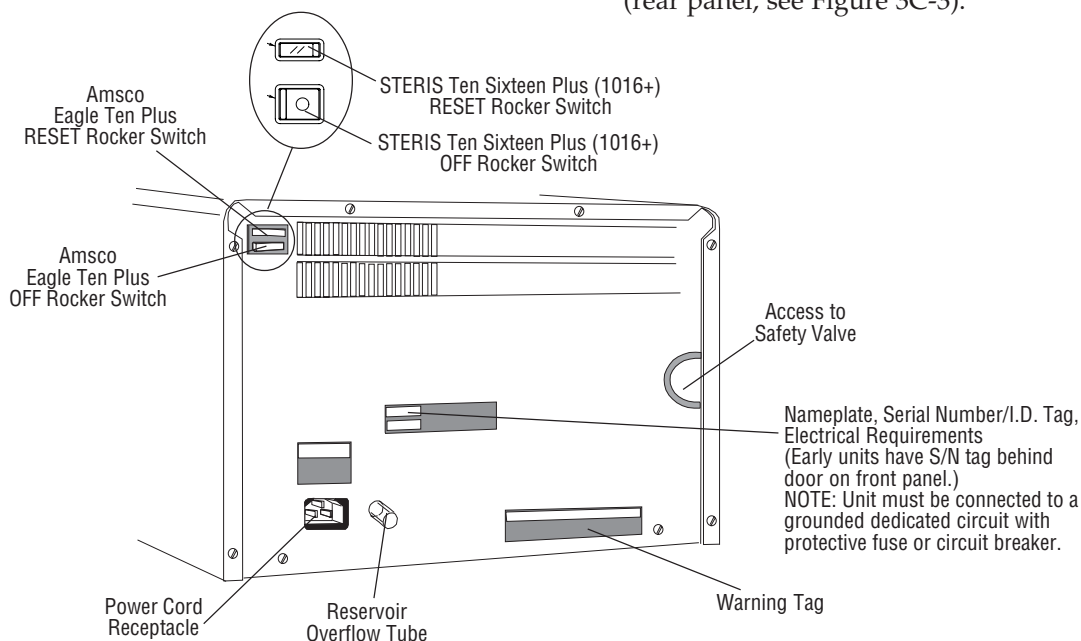


**Figure 3C-3**  
**STERIS Tabletop Steam Sterilizer (Plus Series) (Rear View)**

- **Printer** (optional) - records all cycle data on 2-1/4" (5.72 cm) wide, single-ply thermal paper (see Figure 3C-4). See Section 7.14 for paper ordering information and Section 5.1.4.4 for paper reloading information.

```

*****
*   C O N T R O L   O N   *
*****
3/05/98          at 13:28:26
*****

LOCKED    13:28:32    74F
=====
==== G R A V I T Y   ====
=====
CYCLE START AT 13:28:42
                ON 3/05/00

CYCLE COUNT          5846
OPERATOR _____
STERILIZER  _____

STERILIZE TEMP        270F
STERILIZE TIME        3 min
DRY TIME              5 min

PHASE      TIME      TEMP
-----
Fill       13:28:57    75F
Condition  13:29:22    75F
Condition  13:41:59   213F
Sterilize  13:50:29   270F
Sterilize  13:51:29   271F
Sterilize  13:52:30   271F
Sterilize  13:53:30   271F
Exhaust    13:53:31   271F

+++++
      OPEN DOOR 1/4" and WAIT
      RECOMMENDED DRY TIME.
+++++

```

**Figure 3C-4**  
**Sample Printout**

## 3C.2 PREPARING UNIT FOR INITIAL USE

This 13-step procedure should be followed closely to ensure proper set up and operation of the sterilizer:

1. Open the sterilizer door (push handle in and slide upward) and remove all chamber contents: trays, fuses, paper (units with printer), and power cord (Figure 3C-5).
2. Unwrap the loading trays and power cord.
3. Carefully remove bottom shelf from inside the chamber and verify that the filter is connected to the fill port and is resting on the bottom of the chamber (Figure 3C-6).

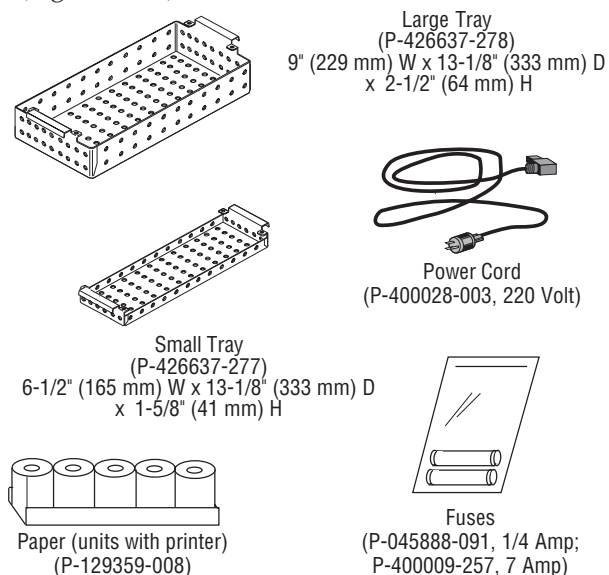


**Figure 3C-5**  
**Chamber Contents**

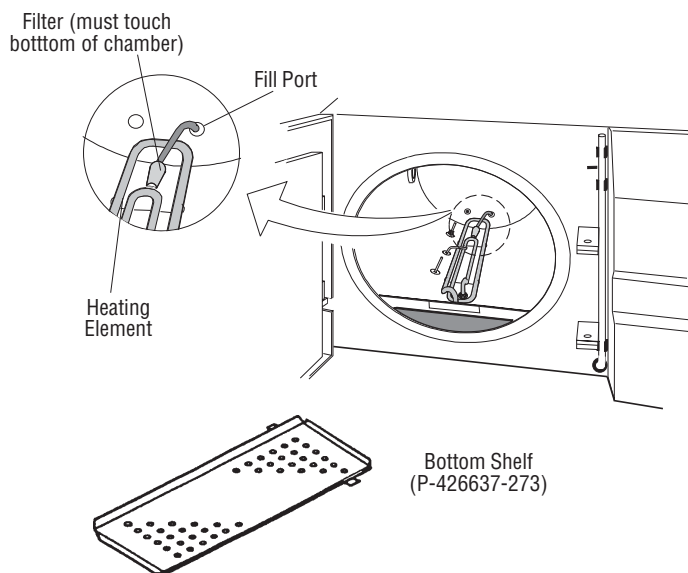


**Figure 3C-6**  
**Filter Position**

**⚠ WARNING - PERSONAL INJURY HAZARD:** To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.

**⚠ WARNING - PERSONAL INJURY HAZARD:** Proper functioning of the "Door Latched" sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting a cycle. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.

4. Verify that the water level tube is in an upright position and secure in its holders (Figure 3C-7 and Figure 3C-8). Make sure that water level tube is not contacting or interfering with the "Door Latched" sensor lever arm.
5. Replace bottom shelf and make sure the front edge of the shelf is inserted into tab for shelf support (see Figure 3C-7). Close and lock the chamber door (push handle in and slide downward).

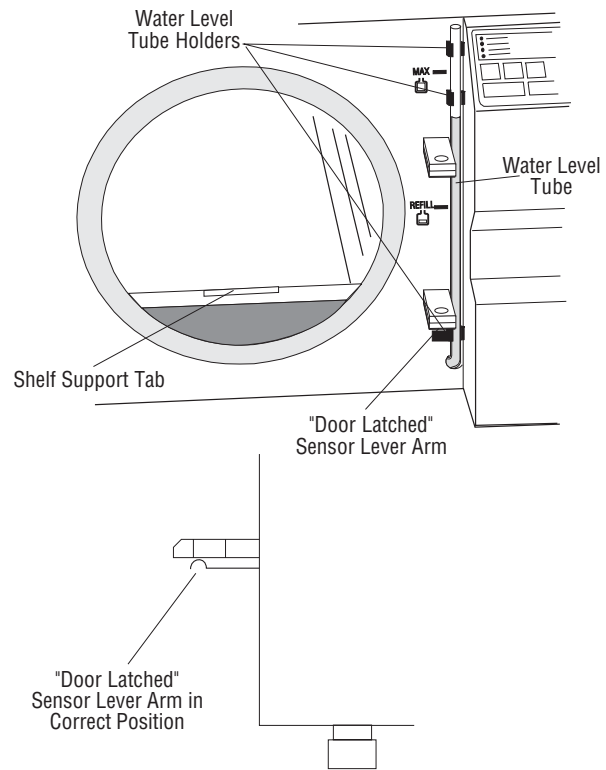


**Figure 3C-7**  
**Water Level Tube and "Door Latched" Sensor**

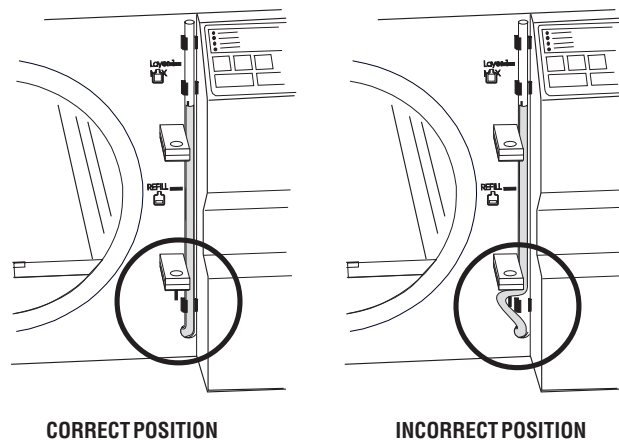


**Figure 3C-8**  
**Water Level Tube Position**

6. Attach the female end of the power cord to the rear of the sterilizer (Figure 3C-3).
7. Plug the male end of the power cord into a dedicated, properly grounded electric outlet of the voltage and current specified on the serial number /ID nameplate (located on rear or front panel of sterilizer, see Figure 3C-3).
8. Press the RESET rocker switch on the rear of the sterilizer (Figure 3C-9). The front panel display will alternate between OFF and time of day (see Figure 3C-10). The optional printer will print "POWER ON" (see Figure 3C-11).
9. Press the ON/STANDBY touch pad and verify that the indicator light turns on and TIME is displayed (see Figure 3C-12). The heaters will begin to cycle to preheat the chamber. The optional printer will print "CONTROL ON" (see Figure 3C-11).
10. Set the correct time and date (see *Setting Temperature Units and Time/Date* in Section 5).

**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** To avoid equipment damage, use deionized or distilled water **ONLY** for filling reservoir and cleaning.

**WARNING - PERSONAL INJURY HAZARD:** Do not overfill reservoir. To avoid slippery conditions and possible load contamination, immediately wipe up all spillage resulting from overfilling reservoir. (Reservoir overflow tube exits on back of unit.)

11. Remove the water reservoir cover (see Figure 2-1) and slowly fill reservoir with distilled or deionized water (minimum resistivity of 1 megohm/cm) until water level in the water level tube is between REFILL and MAX indicators (Figure 3C-14). Reservoir capacity is approximately 1 gal (3.8 L). **DO NOT OVERFILL.** Replace the water reservoir cover.

*NOTE: Do not add water to reservoir when there is water in the chamber. This may cause an overflow situation during the next cycle.*

12. Verify that there are no Error Messages on the front panel display. If there are, consult Appendix A following Section 3C for corrective measures.

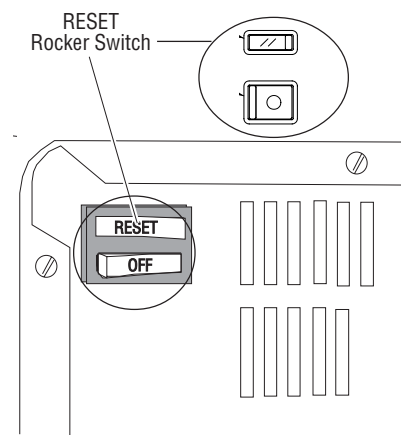


**Figure 3C-9**  
Reset and Off Switches

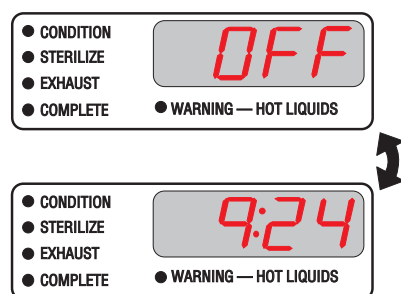


**Figure 3C-10**  
Display

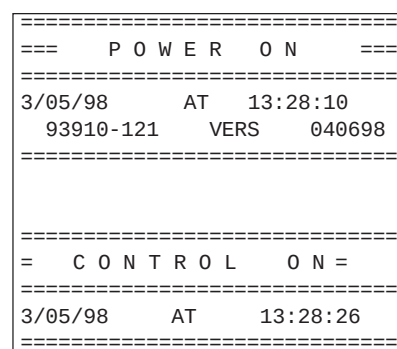


**Figure 3C-11**  
Sample Printout



**Figure 3C-12**  
ON/STANDBY

13. Press the ON/STANDBY touch pad and verify the indicator light is extinguished (see Figure 3C-13). The sterilizer should remain in the STANDBY mode (indicator light off) when the unit is not in use. The RESET rocker switch does not have to be pressed at the end of each day or between cycles.

*NOTE: Initial odor (from insulation) will disappear after approximately 24 hours use.*

### 3C.3 CONTROL MEASURES FOR VERIFYING STERILIZATION PROCESS

As part of the operator's verification of the sterilization process, biological indicators may be used to demonstrate that sterilization conditions have been met. To conform with AAMI standards, steam sterilizers should be tested weekly; however, STERIS recommends daily testing to minimize the impact of a possible recall. A live spore test utilizing *B. Stearothermophilus* is the most reliable form of biological monitoring.

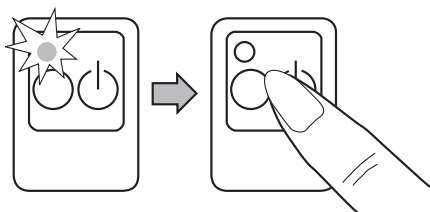


**Figure 3C-13  
ON/STANDBY**

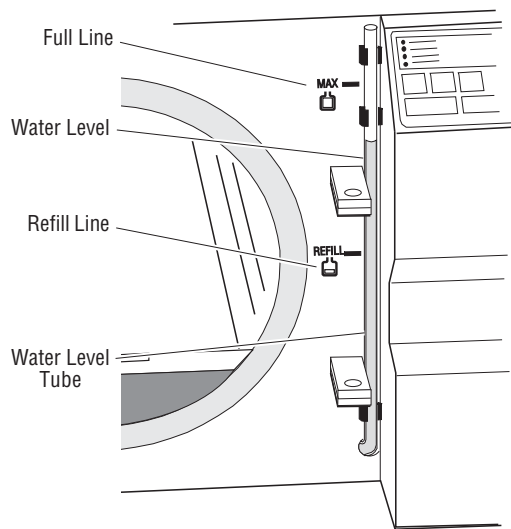


**Figure 3C-14  
Filling Reservoir**

### 3C.4 GRAVITY STERILIZATION

Gravity sterilization is a method of sterilization in which air in the sterilizing chamber is forced out and replaced with saturated steam.

**IMPORTANT:** Should an abnormal cycle condition occur, it will be displayed as indicated in Appendix A, Error Code Troubleshooting Chart.

**! WARNING - PERSONAL INJURY HAZARD:** Sterilizer and trays will be hot after cycle is run. Always wear protective gloves and apron when removing a processed load. Protective gloves and apron should also be worn when reloading sterilizer following previous operation.

**! WARNING - PERSONAL INJURY HAZARD:** To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.

**! WARNING - PERSONAL INJURY HAZARD:** Proper functioning of the "Door Latched" sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting a cycle. Do not start a cycle if the sensor arm is out of position.

**! WARNING - FIRE HAZARD:** When sterilizing wrapped goods, do not allow pouches or wraps to touch chamber wall.

**! WARNING - EXPLOSION HAZARD:** Do not operate this sterilizer in the presence of flammable compounds.

**! WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading or cleaning.

**! WARNING - FALL HAZARD:** To prevent falls, keep floors dry by immediately wiping up any spilled liquids or condensation in sterilizer loading or unloading area.

### 3C.4.1 Preuse Checkout Procedure

1. Prior to the first cycle of the day (be sure the chamber is not hot), wipe out the cooled chamber using a clean cloth with deionized or distilled water. Dry the chamber with a lint-free cloth. If the chamber needs cleaning, refer to Section 5 ("Daily").
2. Verify that the water reservoir is full (water level should be between REFILL and MAX indications on the water level tube, Figure 3C-14). If needed, slowly add distilled or deionized water (minimum resistivity of 1 megohm/cm). Do not overfill. Replace the water reservoir cover.
3. Verify that the water level tube is in an upright position and secure in its holders. Make sure that water level tube is not contacting or interfering with the "Door Latched" sensor lever arm.
4. Verify that the "Door Latched" sensor lever arm is in the correct position and that the sensor is operating properly. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.
5. Without closing the chamber door, press the ON/STANDBY touch pad; verify that the indicator light is ON.

### 3C.4.2 Preparation

1. Use freshly laundered 140 thread count muslin (or equivalent)\*. This helps prevent superheating and provides longer life of the textiles.
2. Limit the size and density of each muslin pack. This ensures complete steam permeation, and assists drying.
3. Limit the size and density of wrapped instrument sets to assist in minimizing "wet pack" problems during post-sterilization.
4. Do not stack or nest utensils unless they are separated by muslin (or equivalent)\*.
5. Use two double-thickness 140 thread count muslin (or equivalent)\* wrappers for surgical supplies. This provides protection after sterilization.

\* Muslin of 140 thread count is the present standard for steam sterilization. The manufacturers of other materials should show data that indicates their product is equivalent to the muslin profile in steam sterilization, drying, and sterility maintenance.

### 3C.4.3 Loading the Trays and Chamber

The following procedure must be followed closely when sterilizing wrapped, unwrapped, and packed goods.

*NOTE: When positioning the loading trays, the small tray must always be used under the large tray even if the large tray is the only one containing items to be sterilized.*

1. Place items to be sterilized into the trays, allowing space for proper air removal and steam penetration throughout the load. Pay special attention to the following:
  - a. Place all fabric packs on edge and arrange packs for maximum steam exposure.
  - b. Place items that might entrap air or water, such as bowls or pitchers, upside down or on edge so they will be sterilized and dried properly (i.e., they will not "catch" water during the drying process).
  - c. Place instrument sets, unwrapped or wrapped, flat in the tray.
  - d. Remove any caps from empty jars, canisters, and nonporous containers and place them upside down in the tray to facilitate sterilization and drying.
  - e. Place hard goods (i.e., metallic instruments) on the bottom when processing mixed loads combining fabrics and hard goods. This prevents wetting of wrapped packs from condensed water dripping from the hard goods load.
2. Carefully insert trays into the sterilizing chamber (Figure 3C-15).
3. Close and lock the chamber door. Verify the door is locked and ready for operation.

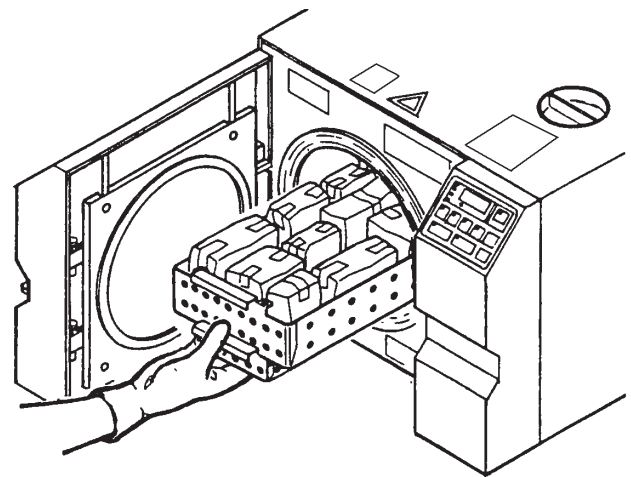


**Figure 3C-15**  
**Loading Sterilizer Chamber**

### 3C.4.4 Programming the Controller: Gravity Cycle

The following procedure is used to alter preset cycle parameters for a given load (see Figure 3C-16 for touch pad locations). Consult Table 3C-1 for minimum times and temperatures for various load types. Read through the entire procedure prior to programming the controller as there is a 5-second time limit between steps.

**⚠ WARNING - STERILITY ASSURANCE HAZARD:** The cycles listed in Table 3C-1 and 3C-2 have been validated. If different cycle parameters are required, IT IS THE RESPONSIBILITY OF THE HEALTH CARE FACILITY TO VALIDATE THE CYCLE TO ENSURE THAT THE PROPER STERILITY ASSURANCE LEVEL (SAL), AS WELL AS DRYING EFFICIENCY, IS MET.

1. After the door is closed, press the STER TIME SET touch pad. The GRAVITY and LIQUID indicator lights will both turn on.
2. Press the GRAVITY touch pad. The LIQUID indicator light will extinguish.
3. Use the increase or decrease touch keys (see Figure 3C-17) to set the proper sterilization time for the load (consult Table 3C-1 for proper sterilization times).
4. Press the STER TEMP SET touch pad. The GRAVITY and LIQUID indicator lights will both turn on.
5. Press the GRAVITY touch pad. The LIQUID indicator light will extinguish.
6. Use the increase or decrease touch keys to set the proper sterilization temperature for the load (consult Table 3C-1 for proper sterilization temperatures).
7. Press the DRY TIME SET touch pad. The GRAVITY indicator light will turn on.
8. Press the GRAVITY touch pad.
9. Use the increase or decrease touch keys to set the proper sterilization dry time for the load (consult Table 3C-1 for proper sterilization dry times).

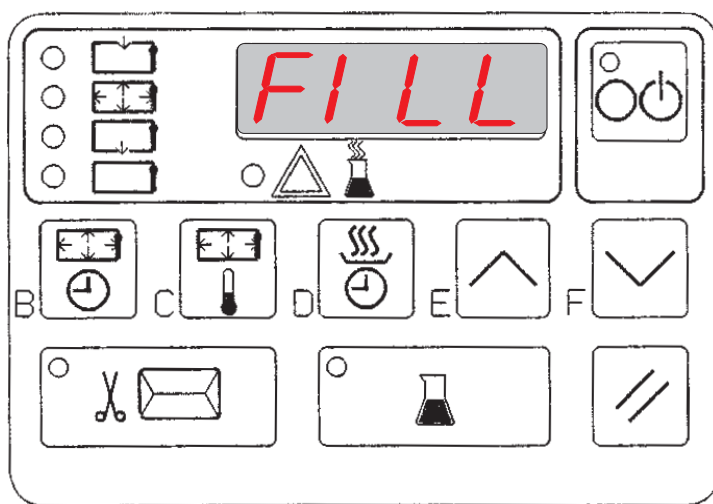


Figure 3C-16  
Control Panel (Step 1, "STARTING" shown)

### 3C.4.5 Initiating a Gravity Cycle

*NOTE: Pressing the RESET touch pad while a cycle is in progress will always abort the cycle. If a cycle is aborted, the load must be reprocessed.*

1. Press the GRAVITY touch pad once to verify settings, set values will be displayed in succession (if incorrect, follow the previous procedure to alter parameters), then again within 5 seconds to initiate the cycle. The panel will display "FILL" (it takes 1 to 2 minutes to fill).
2. Next, the optional printer will print relevant data in the format shown in Figure 3C-18.

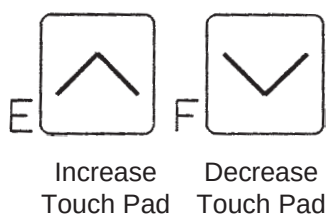


**Figure 3C-17**

|                         |            |       |
|-------------------------|------------|-------|
| LOCKED                  | 8:38:03    | 52C   |
| =====                   |            |       |
| ==== W R A P P E D ==== |            |       |
| =====                   |            |       |
| CYCLE START AT          | 8:38:22    |       |
|                         | ON 9/11/97 |       |
| CYCLE COUNT             | 1498       |       |
| OPERATOR                | _____      |       |
| STERILIZER              | _____      |       |
| STERILIZE TEMP          | 134C       |       |
| STERILIZE TIME          | 10 min     |       |
| DRY TIME                | 60 min     |       |
| PHASE                   | TIME       | TEMP  |
| -----                   | -----      | ----- |
| Fill                    | 8:38:37    | 59C   |

**Figure 3C-18**  
Sample Printout

| CYCLE TYPE   | LOAD*                                                                                       | CONTROL SETTINGS         |               |                     | MINIMUM**<br>PRESSURE<br>bar (psig) |
|--------------|---------------------------------------------------------------------------------------------|--------------------------|---------------|---------------------|-------------------------------------|
|              |                                                                                             | STERILIZE CYCLE SETTINGS |               | DRY<br>TIME<br>min. |                                     |
|              |                                                                                             | STERILIZE<br>TIME (min)  | TEMPERATURE   |                     |                                     |
| PACKED       | Fabric Packs                                                                                | 30                       | 121°C (250°F) | 30                  | 1.03 (15)                           |
| WRAPPED      | Wrapped instrument sets                                                                     | 10                       | 134°C (273°F) | 45                  | 1.86 (27)                           |
| UNWRAPPED*** | Unwrapped metal instruments (without lumens), trays and other empty, non-porous containers. | 3                        | 134°C (273°F) | 0                   | 1.86 (27)                           |

\* If processing mixed loads, always use the longer exposure time setting.

\*\* This pressure reading is the minimum necessary to achieve sterility. Actual readings may be higher.

\*\*\* The unwrapped cycle is typically used for non-porous, unwrapped instruments for immediate use only.

**Table 3C-1**  
**Minimum Recommended Sterilizer Time, Temperature, and Dry Time Settings - Gravity Cycle**

### 3C.5 PHASES OF THE GRAVITY CYCLE

**NOTE:** If the cycle does not start when the GRAVITY touch pad is pressed, consult Section 5.4, Troubleshooting and Error Codes.

After successfully programming and starting the cycle controller, the STERIS Ten Sixteen Plus (1016+) automatically begins the sterilization process (CONDITION, STERILIZE, EXHAUST, DRY, and COMPLETE phases).

Following is a brief description of each stage in this process.

#### 1. Condition

During the CONDITION phase, the CONDITION indicator light illuminates and the chamber heater turns on. The temperature is then displayed on the front panel display and rises until the preset sterilization temperature is reached (see Figure 3C-19).

- i If the chamber is cold, allow up to 30 minutes for chamber to reach sterilization temperature.
- i If the chamber is hot, allow up to 20 minutes for chamber to reach sterilization temperature.

**NOTE:** The sterilizer is programmed to reach the preset sterilization temperature within 20 minutes. If sterilization temperature is not reached during 20 minutes of conditioning, the control holds and waits 15 minutes for rise to temperature set point. If after the additional 15-minute wait time, the chamber temperature has not reached the set point, the control aborts the cycle. If this occurs, see Section 4, "Troubleshooting."

#### 2. Sterilize

The STERILIZE indicator light illuminates once the chamber attains the temperature specified through the program control (the timer then counts downward from the preset exposure time to zero). During the STERILIZE phase, temperature and time remaining in phase are displayed alternately on the front panel display once sterilization temperature is achieved. See Figure 3C-20.

**NOTE:** Temperature may rise 3°-5°F above the preset cycle temperature parameter.

#### 3. Exhaust

The EXHAUST indicator light illuminates once the STERILIZE phase is complete. During the EXHAUST phase, the heater turns off, the chamber exhausts, and the chamber temperature is shown on the front panel display. The buzzer sounds for 4 seconds when EXHAUST is complete; "door" is shown on the front panel display and the buzzer sounds every minute until the door is opened. Be sure chamber pressure is at zero prior to opening. See Figure 3C-21.

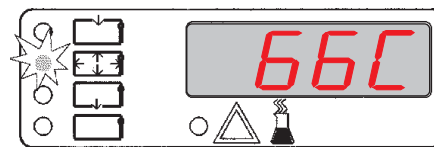


Figure 3C-19  
Sterilizer "CONDITION" Phase Display

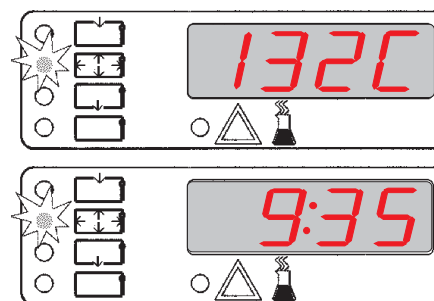


Figure 3C-20  
Sterilizer "STERILIZE" Phase Display

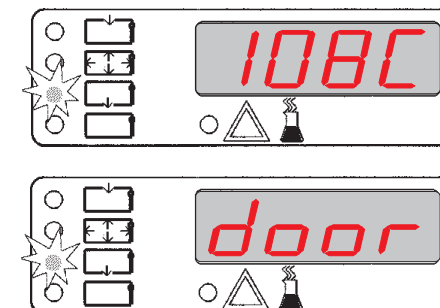


Figure 3C-21  
Sterilizer "EXHAUST" Phase Display

At the end of the EXHAUST phase, open the door (push in and lift the handle), then push the door in until it rests against the door latching mechanism (DO NOT CLOSE DOOR) as pictured in Figure 3C-22. The dry heaters will automatically turn on and begin DRY phase.

#### 4. Dry

During the DRY phase, the phase time is shown on the front panel display and counts upward (min:sec) until the DRY time specified through the program control is achieved (see Figure 3C-23). (The operator may terminate the DRY phase at anytime by pressing the ON/STANDBY touch pad.) When the touch pad is pressed, or the programmed DRY time is achieved, "donE" appears in the front panel display to indicate that the cycle is complete.

#### 5. Complete

Once the DRY phase is complete, the COMPLETE indicator light illuminates and "donE" appears in the front panel display (see Figure 3C-24). Pressing the RESET touch key completes the cycle and the time of day is shown in the front panel display.

Finally, remove the tray containing the sterilized items from the chamber (Figure 3C-25). (Remember, protective gloves are necessary when removing items from the sterilizer.)

Visually check outside of wrapper for dryness. A pack or instrument tray is considered unacceptable if there are water droplets or visible moisture on the exterior of the package or on the tape used to secure it.

Transfer to surface which is well padded with fabric to prevent condensation. Do not place on a cold surface. Be sure there is no air conditioning or cold air vents in close proximity.

Remove packs or instrument trays from padded surface when they have reached ambient (room) temperature.

The optional printer will print all information pertinent to the cycle until the cycle is complete (Figure 3C-26).

*NOTE: A small puddle of water may be found on the counter when the door is opened at the end of a cycle. This puddling is due to condensation of steam on the door and gasket. Use a clean, absorbent cloth to immediately wipe up any water in or around the sterilizer after each cycle.*

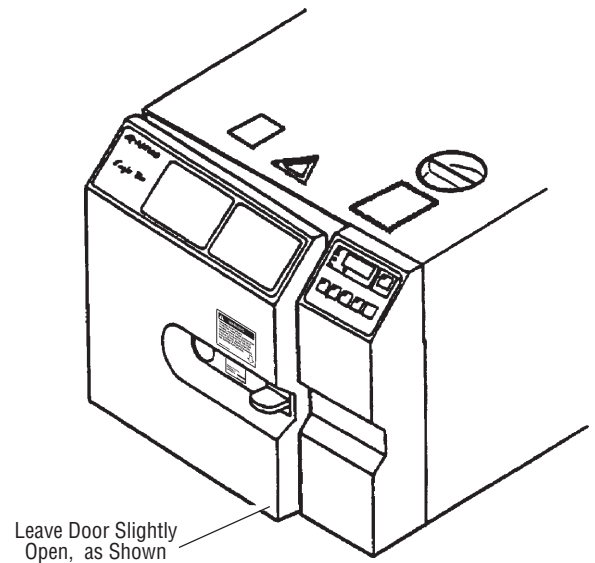


**Figure 3C-22**  
**Door Ajar Following Exhaust Phase**



**Figure 3C-23**  
**Sterilizer "DRY" Phase Display**

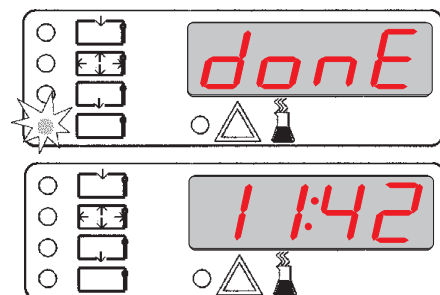


**Figure 3C-24**  
**Sterilizer "COMPLETE" Phase Display**

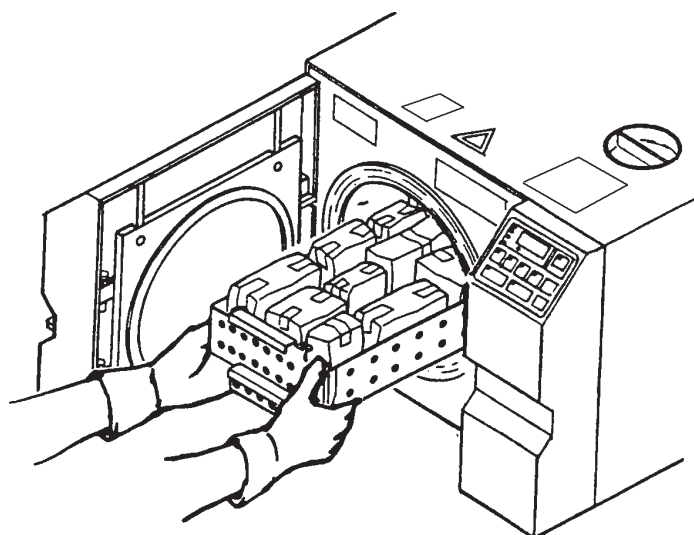


Figure 3C-25  
Unloading Sterilizer

```

=====
==== W R A P P E D ====
=====
CYCLE START AT 12:42:46
                ON 2/09/98

CYCLE COUNT      0081
OPERATOR -----
STERILIZER -----

STERILIZE TEMP    132c
STERILIZE TIME    10 min
DRY TIME          60 min*

PHASE      TIME    TEMP
-----
Fill       12:43:00  33c
Condition  12:43:11  35c
Condition  12:55:59 100c
Sterilize  13:07:14 132c
Sterilize  13:10:14 132c
Sterilize  13:13:15 132c
Sterilize  13:16:16 132c
Exhaust    13:17:17 133c

+++++
OPEN DOOR 1/4" and WAIT
RECOMMENDED DRY TIME.
+++++

UNLOCKED  13:21:27  99c
Drying    13:21:28  97c
Complete  13:51:36  81c
-----

MAX Temperature  133c
Min Temperature  132c

Condition Time    23:54
Sterilize Time    10:01
Exhaust Time      4:04
Dry Time          30:02 *
-----
TOTAL CYCLE      1:08:29

=====
=  READY TO UNLOAD  =
= RESET FOR NEXT CYCLE=
=====

```

Figure 3C-26  
Sample Printout (end of cycle)

*\*The dry phase of the cycle may be terminated at any time during its 60-minute length by pressing ON/STANDBY. A tone sounds at 30, 45, and 60 minutes during the drying phase, prompting the operator to terminate drying, if desired. At the end of 60 minutes, the control signals the end of the cycle and displays "doneE."*

### 3C.6 LIQUID STERILIZATION

Liquid sterilization is accomplished by utilizing a specially designed sterilization cycle.

**IMPORTANT:** Should an abnormal cycle condition occur, it will be displayed as indicated in Appendix A, Error Code Troubleshooting Chart.

 **WARNING - BURN HAZARD:** This sterilizer is not designed to process flammable liquids.

 **WARNING - EXPLOSION HAZARD:** Do not operate this sterilizer in the presence of flammable compounds.

 **WARNING - BURN HAZARD:** Sterilizer and trays will be hot after cycle is run. Always wear protective gloves and apron when removing a processed load. Protective gloves and apron should also be worn when reloading sterilizer following previous operation.

 **WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading or cleaning.

 **WARNING - STERILITY ASSURANCE HAZARD:** It is inappropriate to sterilize liquids intended for direct patient contact.

 **WARNING - PERSONAL INJURY HAZARD:** Use only vented closures - do not use screw caps or rubber stoppers with crimped seals.

 **WARNING - PERSONAL INJURY HAZARD:** Use only Type I borosilicate glass bottles - do not use ordinary glass jugs or any container not designed for sterilization.

 **WARNING - PERSONAL INJURY HAZARD:** Open Door slowly at the end of a liquid sterilization cycle. Do not allow hot bottles to be jolted. This can cause bottle explosions! Do not move bottles if any boiling or bubbling is present.

 **WARNING - PERSONAL INJURY HAZARD:** Allow bottles to cool to touch before attempting to move them from sterilizer shelf or tray(s) to the storage area.

 **WARNING - PERSONAL INJURY HAZARD:** To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.

 **WARNING - PERSONAL INJURY HAZARD:** Proper functioning of the "Door Latched" sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting a cycle. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.

 **WARNING - FALL HAZARD:** To prevent falls, keep floors dry by immediately wiping up any spilled liquids or condensation in sterilizer loading or unloading area.

 **CAUTION - POSSIBLE EQUIPMENT DAMAGE:** If media is processed, bottles and tubes should contain no more than 1/2 the total volume of the container. When processing water bottles and test tubes, the bottles and tubes should contain no more than 3/4 the total volume of the container. Chamber, filter, and water level probe should be cleaned daily when processing media.

 **CAUTION - POSSIBLE EQUIPMENT DAMAGE:** Sterilization of chloride-containing solutions can cause chamber corrosion and is not recommended by the manufacturer. However, if chloride-containing solutions must be processed, clean the chamber, filter, and water level probe after each use.

### 3C.6.1 Preuse Checkout Procedure

**! WARNING - PERSONAL INJURY HAZARD:** To prevent injury from sudden door opening, always check door lock indicator to verify that the door is fully latched before starting cycle.

**! WARNING - PERSONAL INJURY HAZARD:** Proper functioning of the “Door Latched” sensor is essential to the safe operation of the sterilizer. Always make sure that the sensor lever arm is in the correct position and that the sensor is operating properly before starting a cycle. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.

**! WARNING - PERSONAL INJURY HAZARD:** Do not overfill reservoir. To avoid slippery conditions and possible load contamination, immediately wipe up all spillage resulting from overfilling reservoir. (Reservoir overflow tube exits on back of unit.)

1. Prior to the first cycle of the day (be sure the chamber is not hot), wipe out the cooled chamber using a clean cloth with deionized or distilled water. Dry the chamber with a lint-free cloth. If the chamber needs cleaning, refer to Section 5 (“Daily”).
2. Verify that the water reservoir is full (water level should be between REFILL and MAX indications on the water level tube, Figure 3C-14). If needed, slowly add distilled or deionized water (minimum resistivity of 1 megohm/cm). Do not overfill. Replace the water reservoir cover.
3. Verify that the water level tube is in an upright position and secure in its holders. Make sure that water level tube is not contacting or interfering with the “Door Latched” sensor lever arm.
4. Verify that the “Door Latched” sensor lever arm is in the correct position and that the sensor is operating properly. Do not start a cycle if the sensor is not functioning or the sensor arm is out of position.
5. Without closing the chamber door, press the ON/STANDBY touch pad; verify that the indicator light is ON.

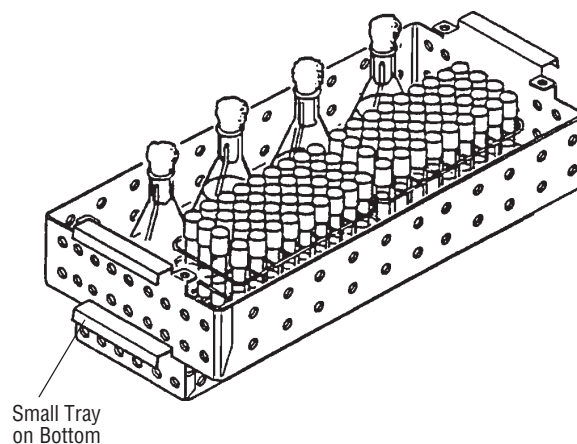


**Figure 3C-27**  
**Loading Trays - Liquid Cycle**

### 3C.6.2 Loading the Tray and Chamber

The following procedure must be followed precisely when sterilizing liquids:

*NOTE: When positioning the loading trays, the small tray must always be used under the large tray even if the large tray is the only one containing items to be sterilized.*

1. Place items to be sterilized into tray, allowing space for proper air removal and steam circulation between items (Figure 3C-28). Only use Type 1 borosilicate glass containers and do not overload the trays (Figure 3C-27). Do not squeeze bottles against each other.
2. Carefully insert trays into the sterilizing chamber.
3. Close and lock the chamber door.

### 3C.6.3 Programming the Cycle Controller: Liquid Cycle

The following procedure is used to alter preset cycle parameters for a given load (see Figure 3C-1 for touch pad locations). Consult Table 3C-2 for minimum time and temperature. Read through the entire procedure prior to programming the controller as there is a 5-second time limit between steps.

**WARNING - STERILITY ASSURANCE HAZARD:** The cycles listed in Tables 3C-1 and 3C-2 have been validated. If different cycle parameters are required, IT IS THE RESPONSIBILITY OF THE HEALTH CARE FACILITY TO VALIDATE THE CYCLE TO ENSURE THAT THE PROPER STERILITY ASSURANCE LEVEL (SAL), AS WELL AS DRYING EFFICIENCY, IS MET.

1. After the door is closed, press the STER TIME SET touch pad. The GRAVITY and LIQUID indicator lights will both turn on.
2. Press the LIQUID touch pad. The GRAVITY indicator light will extinguish.
3. Use the increase or decrease touch keys (see Figure 3C-29) to set the proper sterilization time for the load (consult Table 3C-2 for proper sterilization time).
4. Press the STER TEMP SET touch pad. The GRAVITY and LIQUID indicator lights will both turn on.
5. Press the LIQUID touch pad. The GRAVITY indicator light will extinguish.
6. Use the increase or decrease touch keys to set the proper sterilization temperature for the load (consult Table 3C-2 for proper sterilization temperature).

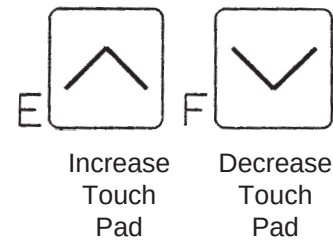


Figure 3C-29

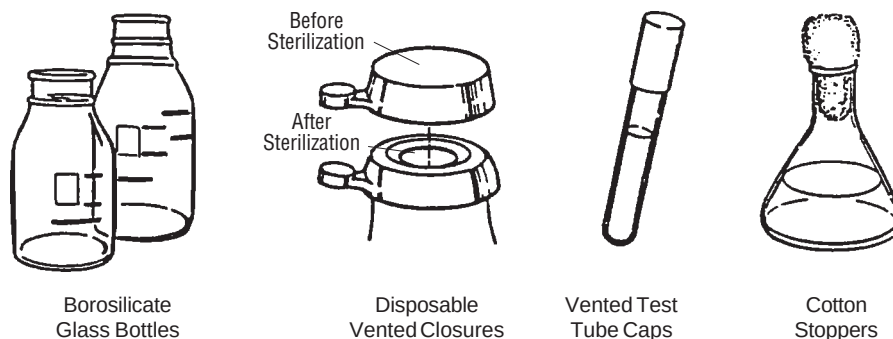


Figure 3C-28  
Proper Liquid Containers and Vented Closures

### 3C.6.4 Initiating a Liquid Cycle

**NOTE:** Pressing the RESET touch pad while a cycle is in progress will always abort the cycle. If a cycle is aborted, the load must be reprocessed.

1. Press the LIQUID touch pad once, to verify settings, set values will be displayed in succession (if incorrect, follow the previous procedure to alter parameters), then again within 5 seconds to initiate the cycle. The panel will display "FILL" (it takes 1 to 2 minutes to fill). See Figure 3C-30.
2. Next, the optional printer will print relevant data in the format shown in Figure 3C-31.

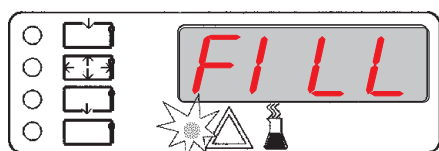


Figure 3C-30

```

=====
==== L I Q U I D S ====
=====
CYCLE START AT 11:28:32
ON 2/06/98

CYCLE COUNT      0074
OPERATOR  -----
STERILIZER  -----

STERILIZE TEMP    121c
STERILIZE TIME    40 min

PHASE      TIME      TEMP
-----
Fill       11:28:45   59c
Condition  11:29:30   52c
Condition  11:43:41  100c
Sterilize   11:54:13  121c
Sterilize   12:03:16  123c
Sterilize   12:12:20  123c
Sterilize   12:21:23  123c
Sterilize   12:30:26  122c
Exhaust     12:34:29  123c
  
```

Figure 3C-31  
Sample Printout

### 3C.7 PHASES OF THE LIQUID CYCLE

**NOTE:** If the cycle does not start when the LIQUID touch pad is pressed, consult Appendix A, Error Code Troubleshooting Chart.

After successfully starting the cycle controller, the STERIS Ten Sixteen Plus (1016+) automatically begins the sterilization process (CONDITION, STERILIZE, EXHAUST, COOL, and COMPLETE phases).

A brief description of each stage in this process follows:

#### 1. Condition

During the CONDITION phase, the CONDITION and WARNING - HOT LIQUIDS indicator lights illuminate and the chamber heater turns on. The temperature is then displayed on the front panel display and rises until the preset sterilization temperature is reached.

- i If the chamber is cold, allow up to 30 minutes for chamber to reach sterilization temperature.
- i If the chamber is hot, allow up to 20 minutes for chamber to reach sterilization temperature.

**NOTE:** The sterilizer is programmed to reach the preset sterilization temperature within 20 minutes. If sterilization temperature is not reached during 20 minutes of conditioning, the control holds and waits 15 minutes for rise to temperature set point. If after the additional 15 minute wait time, the chamber temperature has not reached the set point, the control aborts the cycle. If this occurs, see Section 4, "Troubleshooting."

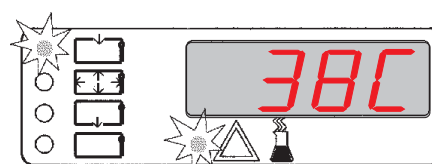


Figure 3C-32  
Sterilizer "CONDITION" Phase Display

| FLASK SIZE        | STERILIZE CYCLE SETTINGS |               | MINIMUM* PRESSURE (psig) |
|-------------------|--------------------------|---------------|--------------------------|
|                   | EXPOSURE TIME (minutes)  | TEMPERATURE   |                          |
| 500 mL or smaller | 40                       | 250°F (121°C) | 15                       |

\* This pressure reading is the minimum necessary to achieve sterility. Actual readings may be higher.

**Table 3C-2**  
Minimum Recommended Exposure Time, Temperature Settings, and Pressure Gauge Readings - Liquid Cycle

*NOTE: Once sterilization temperature is reached (250°F, 121°C), verify that chamber pressure gauge indicates at least the minimum pressure for the cycle selected as shown in Table 3C-2. If the pressure is less than specified, press RESET to abort the cycle, then consult Section 4, "Troubleshooting."*

## 2. Sterilize

The STERILIZE indicator light illuminates once the chamber attains the temperature specified through the program control (the timer then counts downward from the preset exposure time to zero). During the STERILIZE phase, temperature and time remaining in phase are displayed alternately on the front panel display once sterilization temperature is achieved (Figure 3C-33).

*NOTE: Temperature may rise 3°-5°F (1-1/2°-3°C) above preset cycle temperature parameter.*

## 3. Exhaust

The EXHAUST indicator light illuminates once the sterilizer phase is completed. During the EXHAUST phase, the heater turns off, the chamber exhausts, and the chamber temperature is shown on the front panel display (Figure 3C-34).

The buzzer sounds for 4 seconds when EXHAUST is complete; "door" is shown on the front panel display and the buzzer sounds every minute until the door is opened. Be sure chamber pressure is at zero prior to opening.

Open the door (push in and lift the handle), then push the door in until it rests against the door latching mechanism (DO NOT CLOSE DOOR) as pictured in Figure 3C-22.

## 4. Cool

During the COOL phase, the phase time is shown on the front panel display and counts upward (10 min.) until the COOL time automatically specified by program control is achieved (Figure 3C-35).

## 5. Complete

Once the COOL phase is complete, the COMPLETE indicator light illuminates and "done" appears in the front panel display. Pressing the RESET touch key completes the cycle and the time of day is shown in the front panel display (Figure 3C-36).

Finally, remove the trays containing sterilized items from the chamber (Figure 3C-38). (Remember, protective gloves and a face mask are necessary when removing items from the sterilizer.)

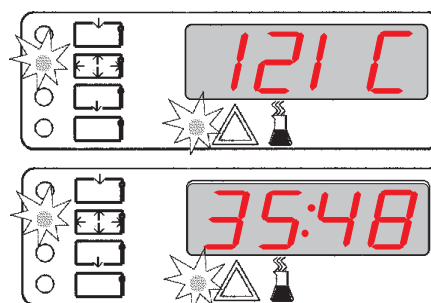


**Figure 3C-33**  
Sterilizer "STERILIZE" Phase Display

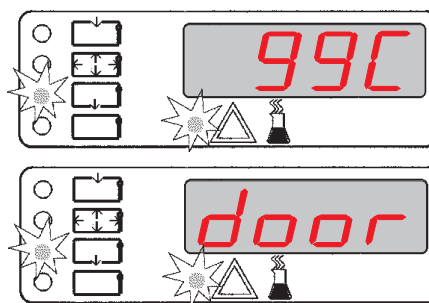


**Figure 3C-34**  
Sterilizer "EXHAUST" Phase Display

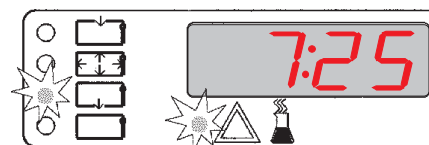


**Figure 3C-35**  
Sterilizer "COOL" Phase Display

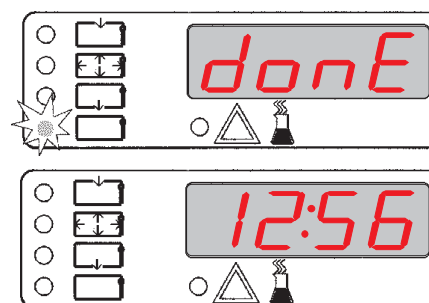


**Figure 3C-36**  
Sterilizer "COMPLETE" Phase Display

The optional printer will print all information pertinent to the cycle until the cycle is complete (Figure 3C-37).

*NOTE: A small puddle of water may be found on the counter when the door is opened at the end of a cycle. This puddling is due to condensation of steam on the door and gasket. Use a clean, absorbent cloth to immediately wipe up any water in or around the sterilizer after each cycle.*

```

=====
==== L I Q U I D S ====
=====
CYCLE START AT 13:82:82
                ON  2/16/99

CYCLE COUNT      1561
OPERATOR _____
STERILIZER _____

STERILIZE TEMP    121C
STERILIZE TIME    48 min

PHASE      TIME      TEMP
----      -
Fill       13:02:15   26C
LOCKED     13:02:16   26C
Condition  13:02:44   27C
Condition  13:11:21   100C
Sterilize  13:15:17   121C
Sterilize  13:24:20   122C
Sterilize  13:33:23   122C
Sterilize  13:42:26   122C
Sterilize  13:51:29   122C
Exhaust    13:55:32   122C
Exhaust    14:00:34   98C

+++++
WARNING!! Hot Liquids!!
OPEN DOOR 1/4" and WAIT 10
MINUTES TO COOL LOAD
+++++

UNLOCKED  14:05:45   88C
Cooling   14:05:46   88C
Complete  14:15:41   63C
-----

MAX Temperature  122C
Min Temperature  121C

Condition Time    12:28
Sterilize Time    40:01
Exhaust Time      10:02
Cooling Time       10:00
-----
TOTAL CYCLE       1:13:25

```

**Figure 3C-37**  
Sample Printout  
(end of cycle)

### 3C.8 LIQUID/MEDIA LOSS



**CAUTION – POSSIBLE EQUIPMENT DAMAGE:** If media is processed, bottles and tubes should contain no more than half the total volume of the container. When processing water bottles and test tubes, the bottles and tubes should contain no more than 3/4 the total volume of the container. Chamber, filter, and water level probe should be cleaned daily when processing media.

Certain biological media may boil more vigorously during slow exhaust because of vented closure being used, and/or ratio of liquid to volume of media container. If excessive liquid/media loss or if media spills are discovered in the bottom of chamber, proceed as follows:

1. Verify that media containers are not overly full. If uncertain about volume of media recommended per container, contact a STERIS Customer Account Representative.
2. Use appropriate vented closure for media being processed.
3. Certain liquid/media processes may require extended exhaust rates beyond standard EXHAUST phase. For additional information, contact a STERIS Customer Account Representative.

*NOTE: Chamber, filter, and water level probe should be cleaned daily when processing media. See Section 5 for cleaning instructions.*

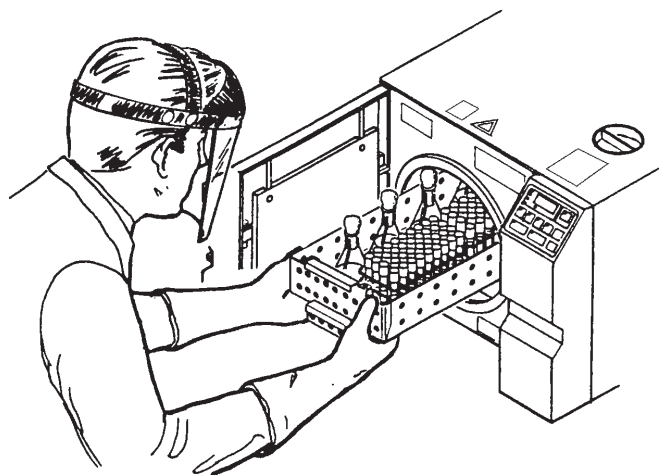
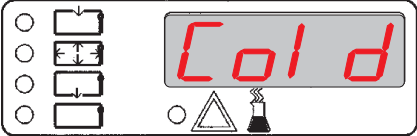
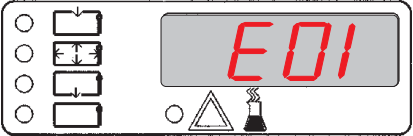
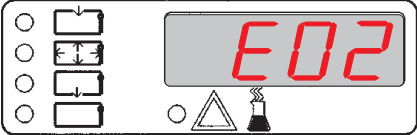
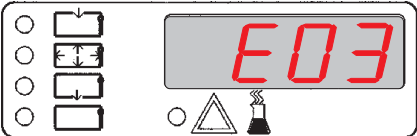


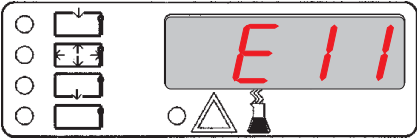
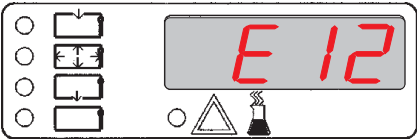
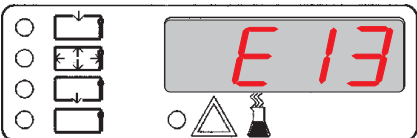
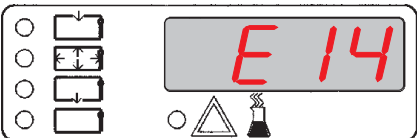
**Figure 3C-38**  
Unloading Liquids

## APPENDIX A (Applies to Sections 3, 3A, 3B, 3C)

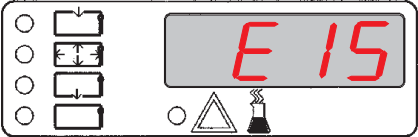
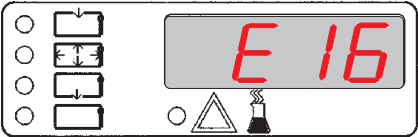
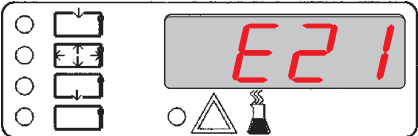
### ERROR CODE TROUBLESHOOTING CHART (Domestic and International Displays Shown)

| Error Message                                                                                                                                                              | Explanation                                                                  | Operator Action                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>     | <p>Chamber temperature is less than 60°F (16°C).</p>                         | <ul style="list-style-type: none"> <li>• Open door and wait for unit to warm up. ("COLD" clears when chamber is greater than 60°F [16°C], and there is no mechanical problem.)</li> <li>• If "COLD" does not clear, contact dealer service department.</li> </ul>                                                                                                                                                                               |
| <br>     | <p>Shorted temperature sensor.</p>                                           | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul>                                                                                                                                                                                                                                       |
| <br> | <p>Open temperature sensor.</p>                                              | <ul style="list-style-type: none"> <li>• Open the door and allow unit to stabilize at room temperature.</li> <li>• Press RESET touch pad, then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul>                                                                                                                                                                                                |
| <br> | <p>Level sensor detects water in chamber. Possible water sensor failure.</p> | <ul style="list-style-type: none"> <li>• Open door and remove trays and shelf. If water is present (correct water level is when heater is completely immersed in water), replace shelf and trays and start a cycle.</li> <li>• If no water is present, clean water level sensor (see Section 5.1.1.2).</li> <li>• Press RESET touch pad, then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul> |

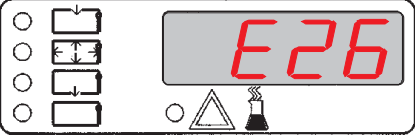
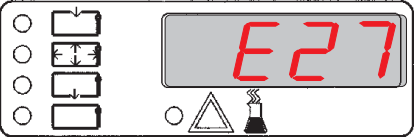
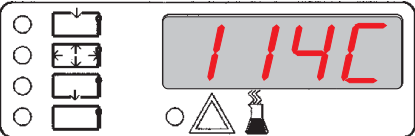
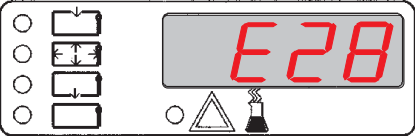
**APPENDIX A (Applies to Sections 3, 3A, 3B, 3C) (continued)**  
**ERROR CODE TROUBLESHOOTING CHART (continued)**  
**(Domestic and International Displays Shown)**

| Error Message                                                                                                                                                              | Explanation                                                  | Operator Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>     | Shorted temperature sensor.                                  | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul>                                                                                                                                                                                                                                                                                                                                   |
| <br>     | Open temperature sensor.                                     | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul>                                                                                                                                                                                                                                                                                                                                   |
| <br> | Water level sensor failure or insufficient water in chamber. | <ul style="list-style-type: none"> <li>• Carefully open chamber door.</li> <li>• Check for water in the chamber.</li> <li>• If no water is in the chamber, then check reservoir for adequate supply. Slowly refill with deionized or distilled water if necessary. If not, clean the filter.</li> <li>• If there is water in the chamber, then clean the water level sensor (see Section 5.1.1.2).</li> <li>• Press RESET touch pad, then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul> |
| <br> | Heating problem.                                             | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• Check door gasket for damage or dirt build-up.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul>                                                                                                                                                                                                                                                                         |

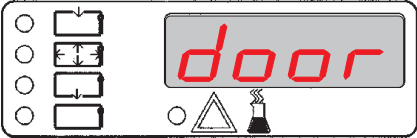
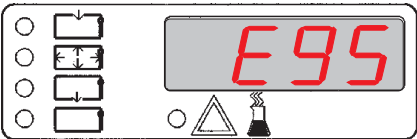
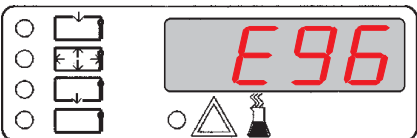
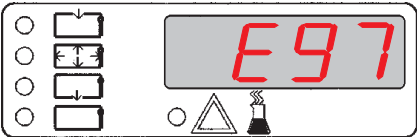
**APPENDIX A (Applies to Sections 3, 3A, 3B, 3C) (continued)**  
**ERROR CODE TROUBLESHOOTING CHART (continued)**  
**(Domestic and International Displays Shown)**

| Error Message                                                                                                                                                              | Explanation                                                     | Operator Action                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>     | Unit fails to reach sterilization temperature in allotted time. | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• Check door gasket for damage or dirt build-up.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul> |
| <br>     | Door unlocked during condition phase.                           | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul>                                                            |
| <br> | Shorted temperature sensor.                                     | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul>                                                           |
| <br> | Open temperature sensor.                                        | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul>                                                           |

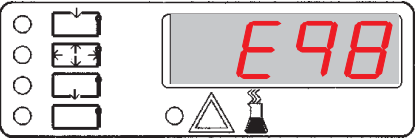
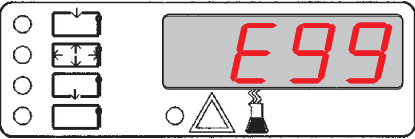
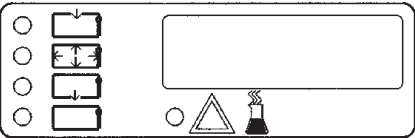
**APPENDIX A (Applies to Sections 3, 3A, 3B, 3C) (continued)**  
**ERROR CODE TROUBLESHOOTING CHART (continued)**  
**(Domestic and International Displays Shown)**

| Error Message                                                                                                                                                              | Explanation                                                                                                                                                | Operator Action                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>     | Door unlocked during sterilize phase.                                                                                                                      | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul>                                                                     |
| <br>     | Failed to maintain temperature set point.                                                                                                                  | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• Check door gasket for damage/dirt. Replace if necessary.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul> |
| <br> | Temperature has dropped below set point (blinking sterilizer indicator light). The timer resets and cycle will resume when preset temperature is achieved. | <ul style="list-style-type: none"> <li>• Monitor cycle.</li> </ul>                                                                                                                                                                                                            |
| <br> | Over-temperature (cycle will abort).                                                                                                                       | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul>                                                                     |

**APPENDIX A (Applies to Sections 3, 3A, 3B, 3C) (continued)**  
**ERROR CODE TROUBLESHOOTING CHART (continued)**  
**(Domestic and International Displays Shown)**

| Error Message                                                                                                                                                                                                                                                                                                                                                                                              | Explanation                                                                          | Operator Action                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>Domestic control panel showing 'door' error. The display shows 'door' in red. The status indicators on the left are: CONDITION (filled), STERILIZE (filled), EXHAUST (filled), COMPLETE (filled). Below the display is a warning icon (triangle with exclamation mark) and a hot liquid icon (flask with steam).</p>  | <p>Door unlocked at cycle start.</p> <p>Door locked during exhaust or dry phase.</p> | <ul style="list-style-type: none"> <li>• Close and lock door.</li> <li>• Unlock and open door 1/4 inch.</li> </ul>                                                                                        |
|  <p>International control panel showing 'door' error. The display shows 'door' in red. The status indicators on the left are: CONDITION (empty), STERILIZE (empty), EXHAUST (empty), COMPLETE (empty). Below the display is a warning icon (triangle with exclamation mark) and a hot liquid icon (flask with steam).</p> |                                                                                      |                                                                                                                                                                                                           |
|  <p>Domestic control panel showing 'E95' error. The display shows 'E95' in red. The status indicators on the left are: CONDITION (filled), STERILIZE (filled), EXHAUST (filled), COMPLETE (filled). Below the display is a warning icon (triangle with exclamation mark) and a hot liquid icon (flask with steam).</p>    | Power failure during cycle.                                                          | <ul style="list-style-type: none"> <li>• Check for DRY (Gravity) or COOL (Liquid) load. If load is still wet, let it DRY or COOL, then reprocess the load.</li> </ul>                                     |
|  <p>International control panel showing 'E95' error. The display shows 'E95' in red. The status indicators on the left are: CONDITION (empty), STERILIZE (empty), EXHAUST (empty), COMPLETE (empty). Below the display is a warning icon (triangle with exclamation mark) and a hot liquid icon (flask with steam).</p>   |                                                                                      |                                                                                                                                                                                                           |
|  <p>Domestic control panel showing 'E96' error. The display shows 'E96' in red. The status indicators on the left are: CONDITION (filled), STERILIZE (filled), EXHAUST (filled), COMPLETE (filled). Below the display is a warning icon (triangle with exclamation mark) and a hot liquid icon (flask with steam).</p>  | Power failure during cycle.                                                          | <ul style="list-style-type: none"> <li>• Load must be reprocessed.</li> </ul>                                                                                                                             |
|  <p>International control panel showing 'E96' error. The display shows 'E96' in red. The status indicators on the left are: CONDITION (empty), STERILIZE (empty), EXHAUST (empty), COMPLETE (empty). Below the display is a warning icon (triangle with exclamation mark) and a hot liquid icon (flask with steam).</p> |                                                                                      |                                                                                                                                                                                                           |
|  <p>Domestic control panel showing 'E97' error. The display shows 'E97' in red. The status indicators on the left are: CONDITION (filled), STERILIZE (filled), EXHAUST (filled), COMPLETE (filled). Below the display is a warning icon (triangle with exclamation mark) and a hot liquid icon (flask with steam).</p>  | Power failure during cycle.                                                          | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul> |
|  <p>International control panel showing 'E97' error. The display shows 'E97' in red. The status indicators on the left are: CONDITION (empty), STERILIZE (empty), EXHAUST (empty), COMPLETE (empty). Below the display is a warning icon (triangle with exclamation mark) and a hot liquid icon (flask with steam).</p> |                                                                                      |                                                                                                                                                                                                           |

**APPENDIX A (Applies to Sections 3, 3A, 3B, 3C) (continued)**  
**ERROR CODE TROUBLESHOOTING CHART (continued)**  
**(Domestic and International Displays Shown)**

| Error Message                                                                                                                                                                                                                                                                                                                                                     | Explanation                                                | Operator Action                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>Domestic display showing E98 error code. The display has four status indicators: CONDITION, STERILIZE, EXHAUST, and COMPLETE. The E98 code is shown in red. Below the code is a warning icon (a triangle with an exclamation mark) and the text "WARNING--HOT LIQUIDS".</p>  | Abnormal rapid rise in temperature (> 10°F in 10 seconds). | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET (abort cycle) touch pad, then retry.</li> <li>• Check for water in reservoir; fill if necessary.</li> <li>• Restart cycle.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul> |
|  <p>International display showing E98 error code. The display has four status indicators: CONDITION, STERILIZE, EXHAUST, and COMPLETE. The E98 code is shown in red. Below the code is a warning icon (a triangle with an exclamation mark) and a steam icon.</p>                |                                                            |                                                                                                                                                                                                                                                                                                               |
|  <p>Domestic display showing E99 error code. The display has four status indicators: CONDITION, STERILIZE, EXHAUST, and COMPLETE. The E99 code is shown in red. Below the code is a warning icon (a triangle with an exclamation mark) and the text "WARNING--HOT LIQUIDS".</p>  | RESET touch pad was pressed during a cycle.                | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad to clear.</li> </ul>                                                                                                                                                                                        |
|  <p>International display showing E99 error code. The display has four status indicators: CONDITION, STERILIZE, EXHAUST, and COMPLETE. The E99 code is shown in red. Below the code is a warning icon (a triangle with an exclamation mark) and a steam icon.</p>                |                                                            |                                                                                                                                                                                                                                                                                                               |
|  <p>Domestic display showing a blank error code. The display has four status indicators: CONDITION, STERILIZE, EXHAUST, and COMPLETE. The display is blank. Below the display is a warning icon (a triangle with an exclamation mark) and the text "WARNING--HOT LIQUIDS".</p> | Chamber temperature exceeded 395°F.                        | <ul style="list-style-type: none"> <li>• Press main reset switch on rear of unit.</li> <li>• Allow unit to cool.</li> <li>• Reprocess the load.</li> <li>• Rerun the selected cycle.</li> <li>• If display is blank again, contact dealer service department.</li> </ul>                                      |
|  <p>International display showing a blank error code. The display has four status indicators: CONDITION, STERILIZE, EXHAUST, and COMPLETE. The display is blank. Below the display is a warning icon (a triangle with an exclamation mark) and a steam icon.</p>               |                                                            |                                                                                                                                                                                                                                                                                                               |

## Section 4: Principles of Operation

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### 4.0 FUNCTIONAL DESCRIPTION

When the unit is plugged into a properly grounded 120-VAC outlet and the reset rocker switch (located on the back of the unit) is pressed, AC power will be enabled to the unit. The display will alternate between OFF and the time of day. The optional printer will print "POWER ON." Pressing the ON/STANDBY touch pad will turn on the "ON" indicator light and the time will be displayed. The optional printer will print "CONTROL ON." The heater (HTR1) will be pulsed on by the control using Triac #1 (pre 7-91 units) or Solid State relay and the CR1 heater disconnect relay.

After the door is closed and locked and a nonliquids cycle has been selected, the unit will automatically fill the chamber through fill valve V1 to the proper level detected by the water level probe FS1. The display will indicate "FILL." The optional printer will now print relevant cycle data through the remainder of the cycle. Typical fill time is 1 to 2 minutes. The condition light will now be lit, indicating advancement into this phase. After the fill is complete, the heater (HTR1) is energized using Triac #1 (pre 7-91 units) or Solid State relay and the heater disconnect relay CR1. The display will indicate chamber temperature until the selected sterilize temperature is reached. The heater will remain energized until a sterilize temperature plus 2 degrees has been reached. Temperature is controlled by the use of thermistor QTM1.

Upon reaching the selected sterilizing temperature, the "STERILIZE" phase indicator light will come on and the "CONDITION" light will go off. The display will alternate the chamber temperature and the exposure time remaining until the exposure timer has counted down to zero.

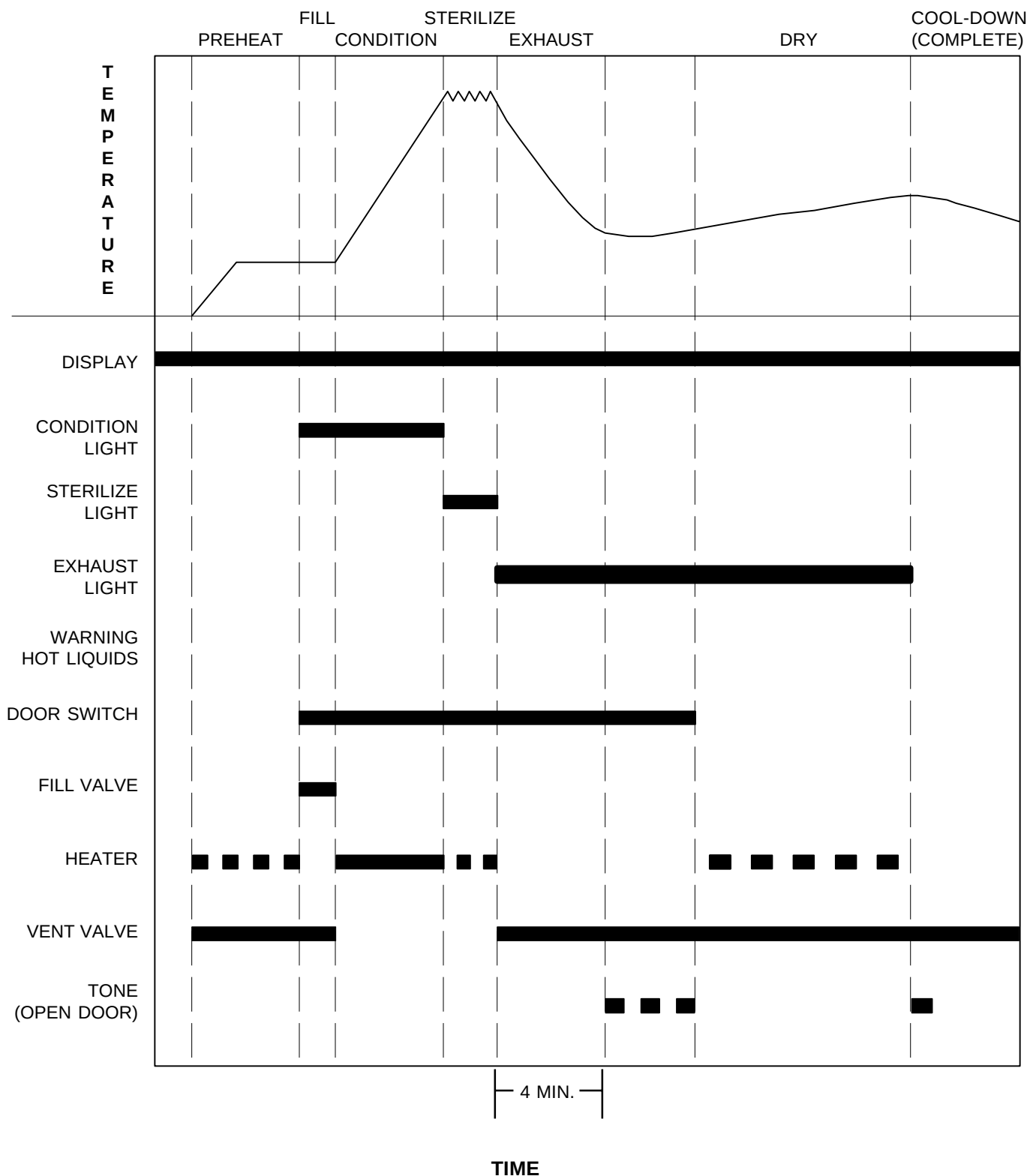
Once the sterilize phase has been complete, the "EXHAUST" indicator light illuminates, signaling the beginning of the exhaust phase. The display will

indicate chamber temperature. The heater will be deenergized and the vent valve, V2, will be energized by the control for a preset time of 4 minutes. Steam in the chamber diverts through the vent piping into the condensing coil and back into the reservoir in the form of condensate. After the exhaust time has elapsed, the display will indicate "door" and a buzzer will sound for 4 seconds. Opening the door will initiate the "DRY" phase. If the door is not opened, the buzzer will sound every 3 minutes to indicate cycle status.

When the door is unlocked, the "DRY" phase begins. The display indicates "00" and starts counting up. Locking the door at this time will cause the buzzer to sound, the dry time to stop counting, and the display to indicate "door." The heater (HTR1) will be energized during dry through Triac #1 (pre 7-91 units) or Solid State relay and the heater disconnect relay. The buzzer will sound for 4 seconds at 30, 45, and 60 minutes. At the end of the 60-minute dry phase, "DONE" will appear on the display and the heater will be deenergized. The dry phase may be terminated by pressing the ON/STANDBY touch key any time during the dry phase. When "DONE" appears on the display, the complete phase indicator will light. Pressing the RESET touch key returns the time of day to the front panel display.

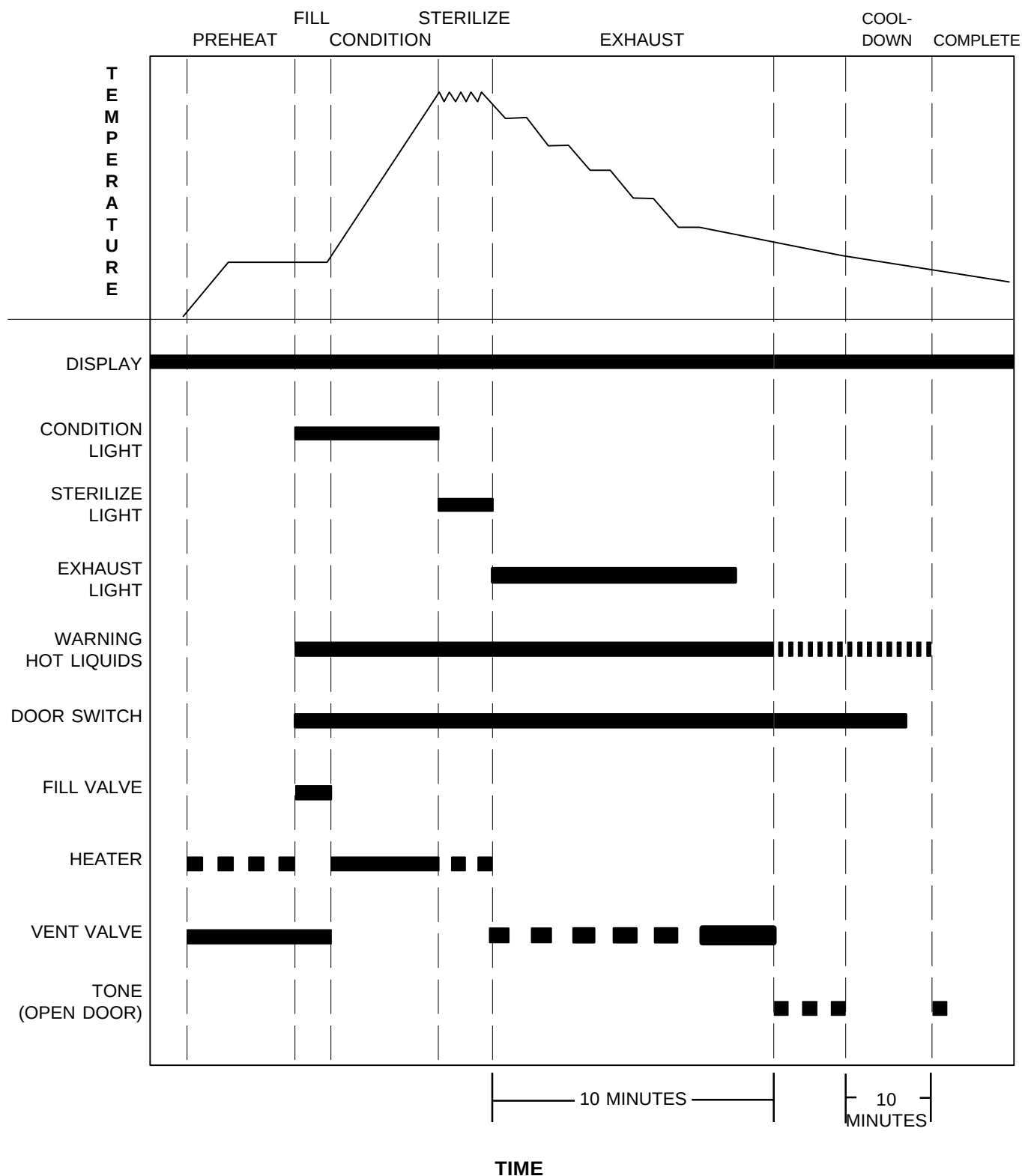
The liquids cycle varies from the gravity cycle as follows:

- During the "EXHAUST" phase, the vent solenoid is pulsed to maintain a slow exhaust rate. This is accomplished by the control pulsing the vent valve over a 10-minute period.
- There is no "DRY" phase in a liquid cycle.



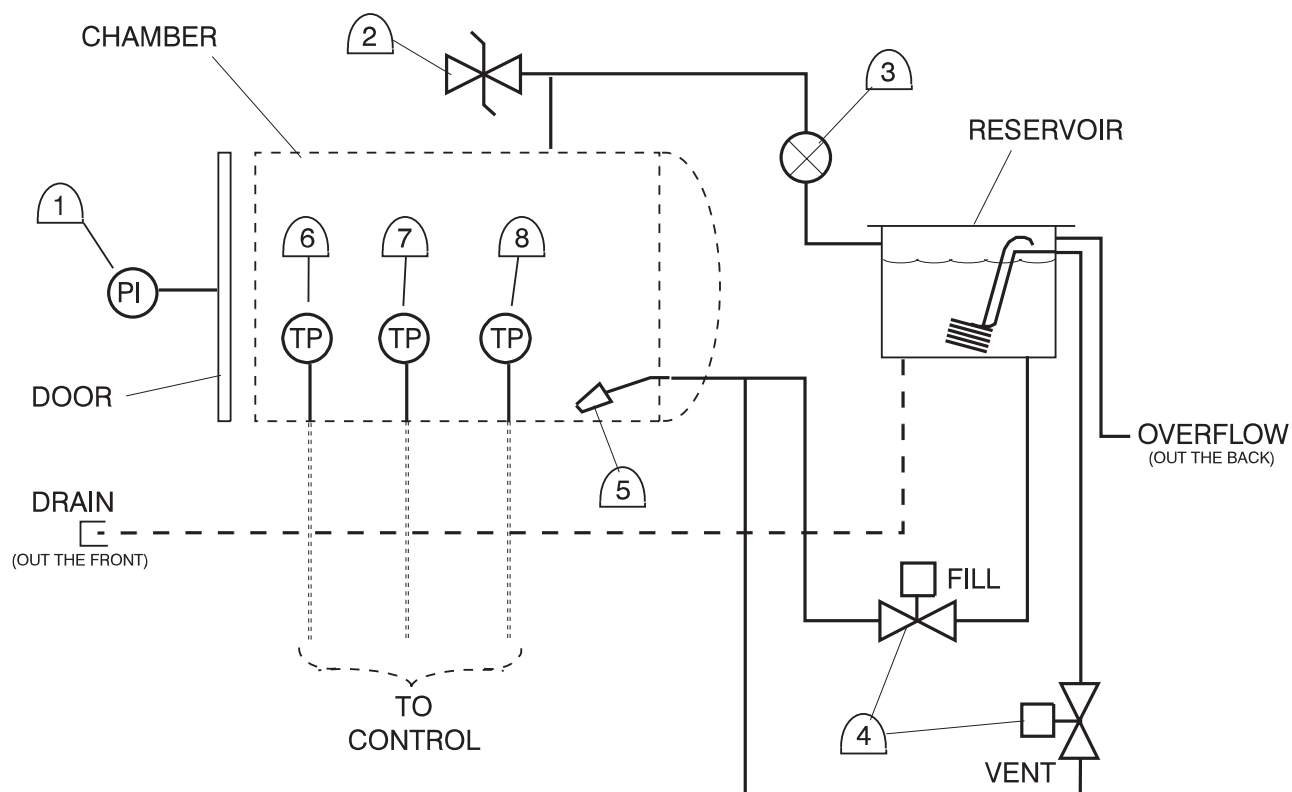
Note: Units built after 1/1/00 have a 4-minute hold during the condition phase.

**Figure 4-1**  
**Cycle Graph - Gravity Cycle**



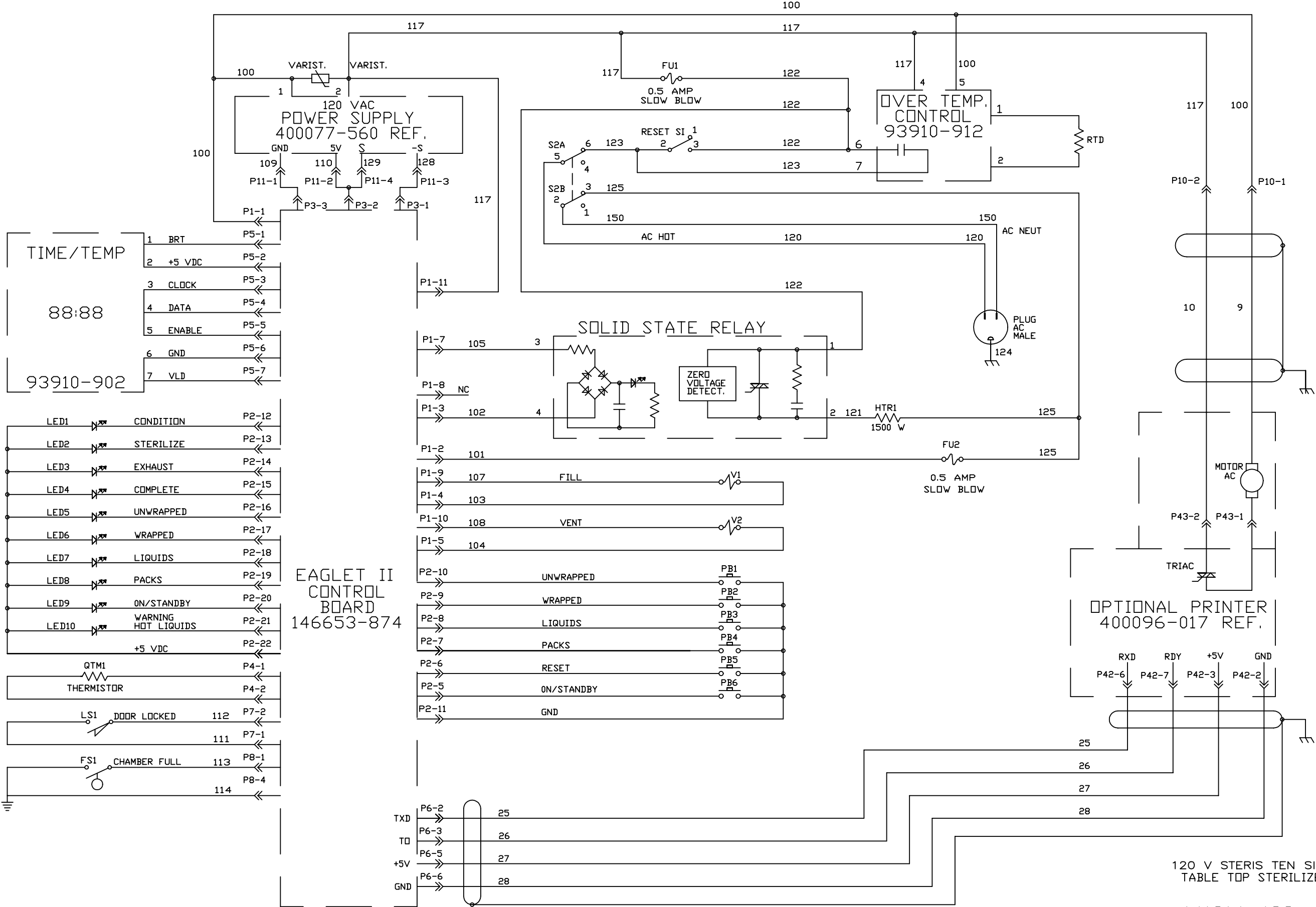
Note: Units built after 1/1/00 have a 4-minute hold during the condition phase.

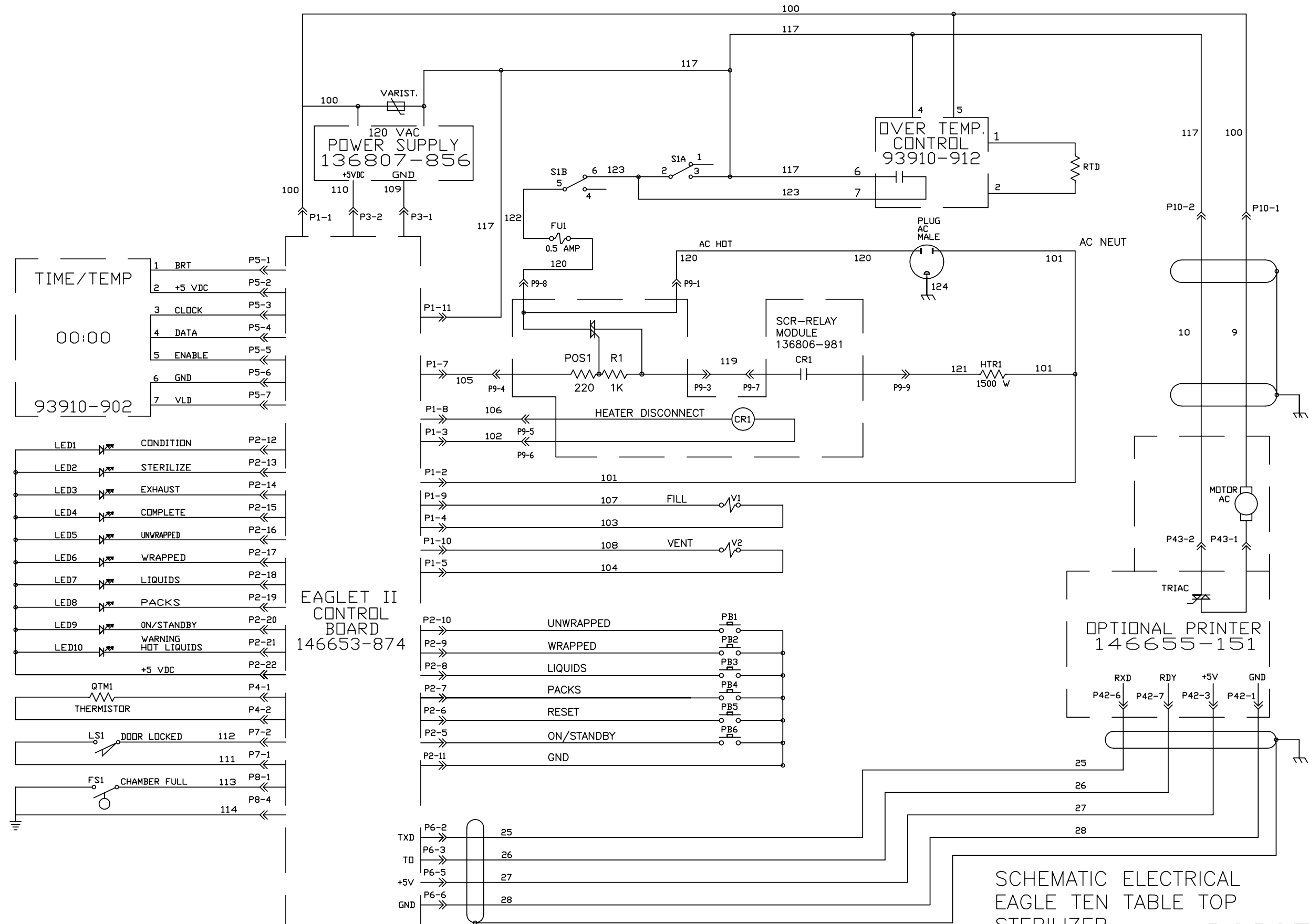
**Figure 4-2**  
**Cycle Graph - Liquid Cycle**

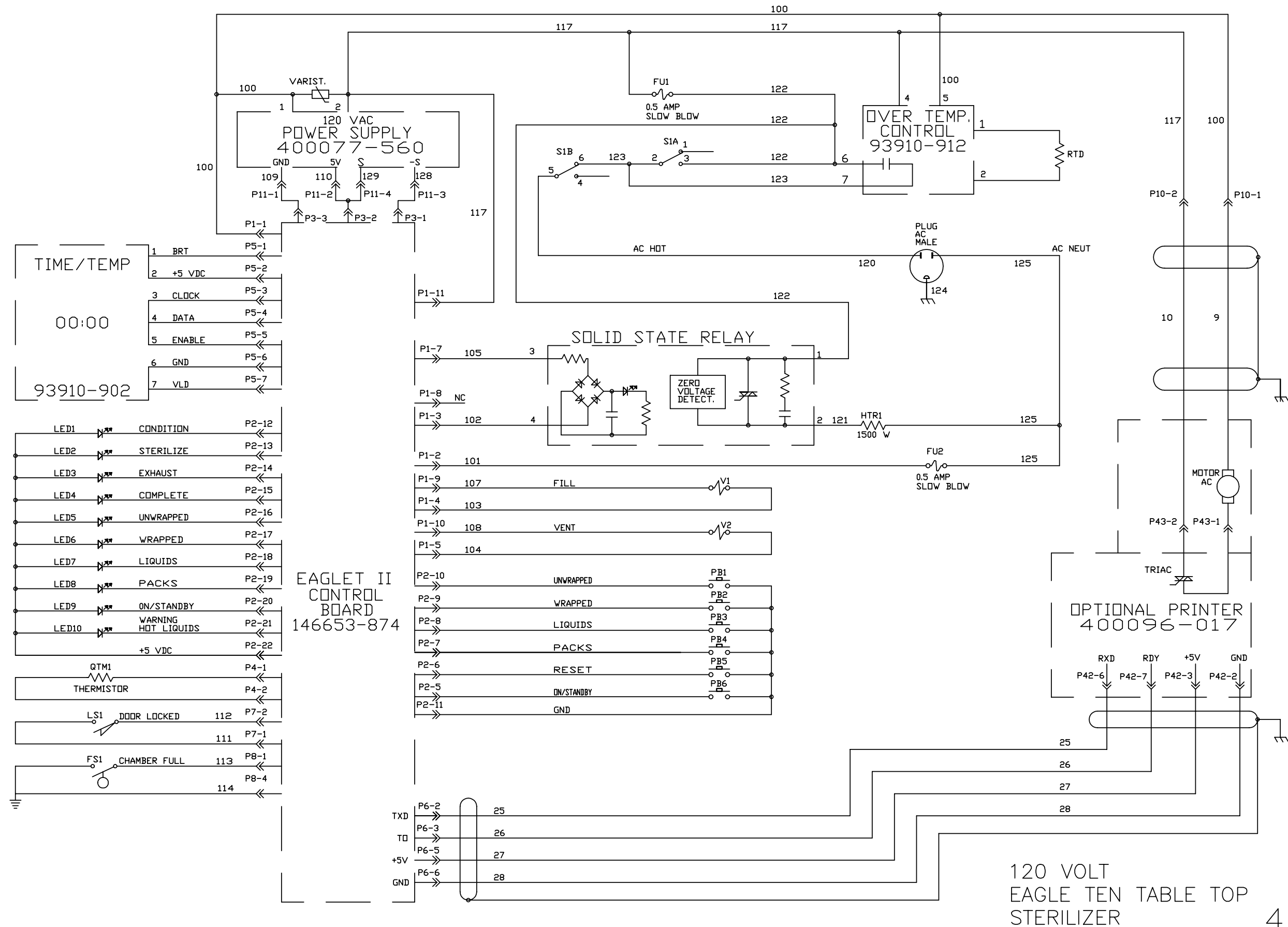


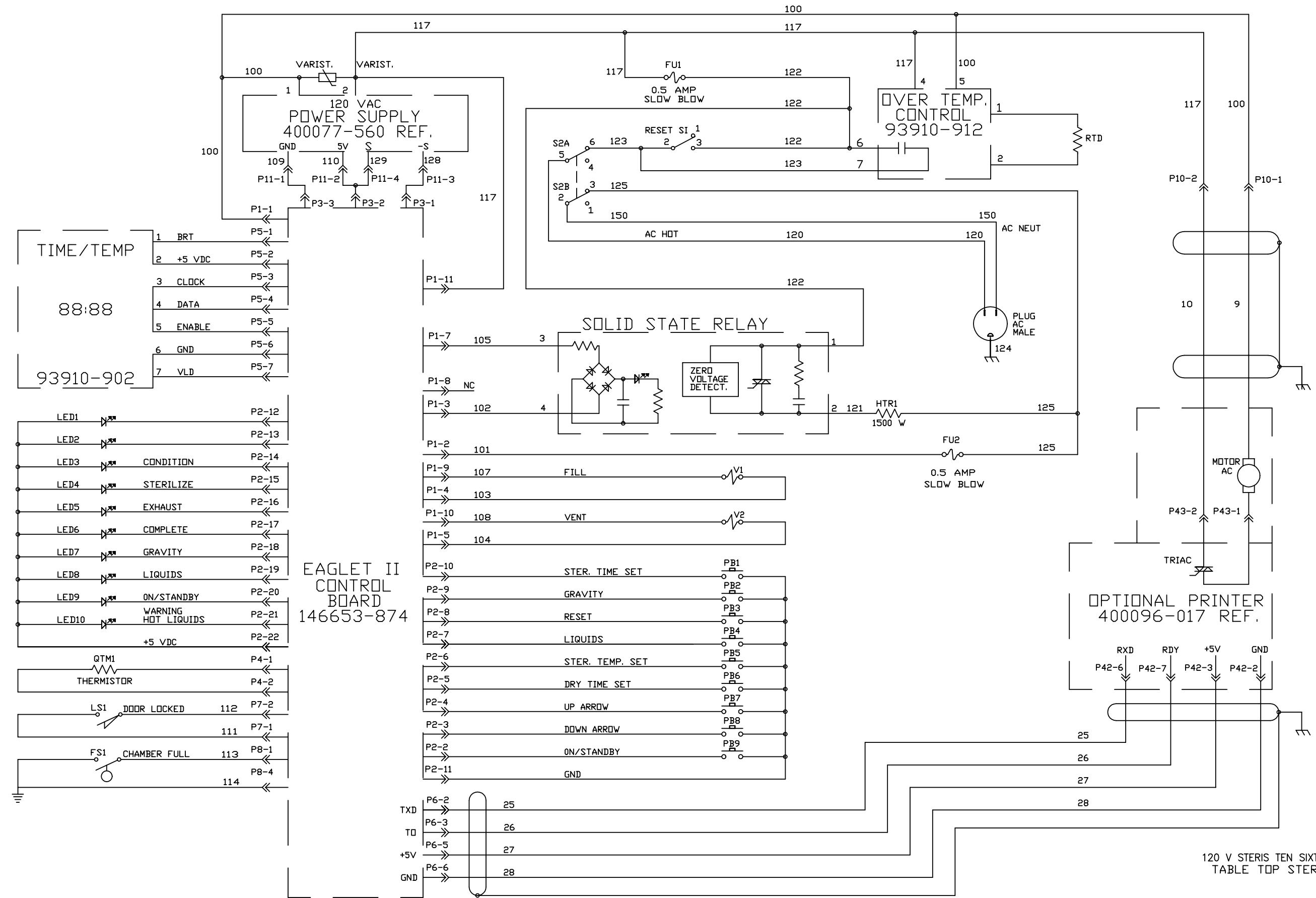
- |                         |                      |
|-------------------------|----------------------|
| ① PRESSURE GAUGE        | ⑤ FILTER             |
| ② PRESSURE RELIEF VALVE | ⑥ THERMISTOR         |
| ③ STEAM TRAP            | ⑦ OVERTEMP RTD       |
| ④ SOLENOID VALVES       | ⑧ WATER LEVEL SENSOR |

**Figure 4-3**  
**Piping Diagram**



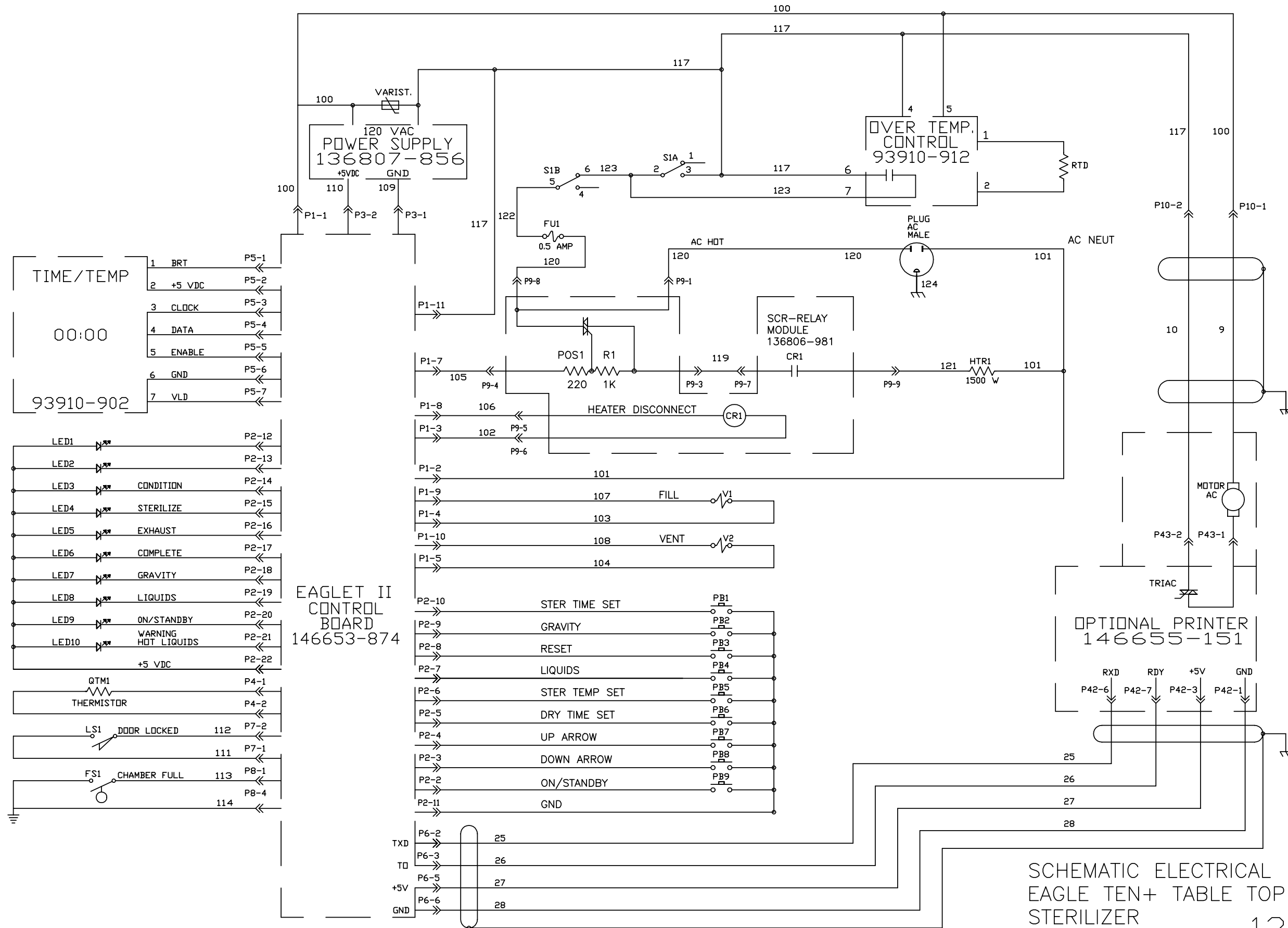


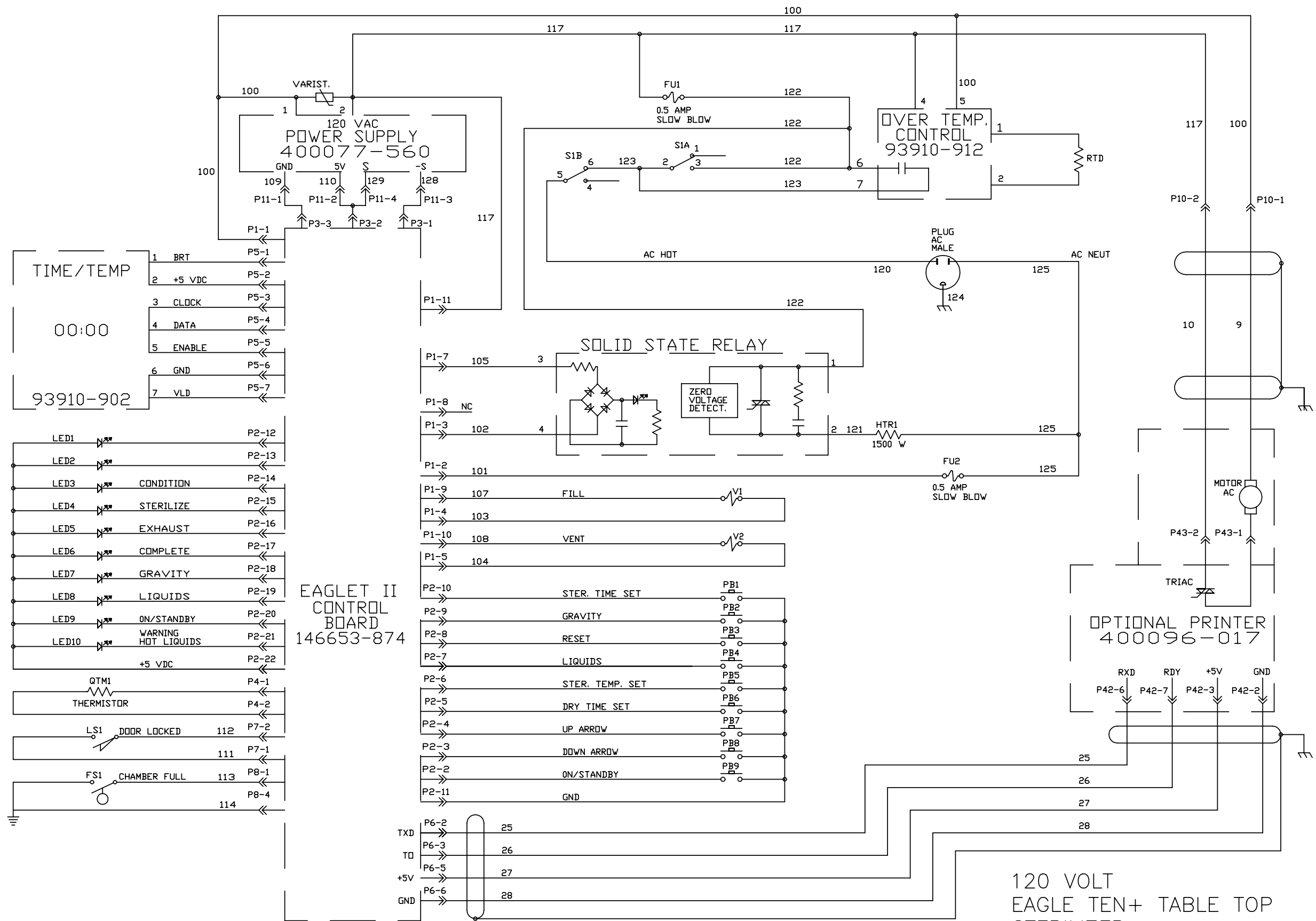


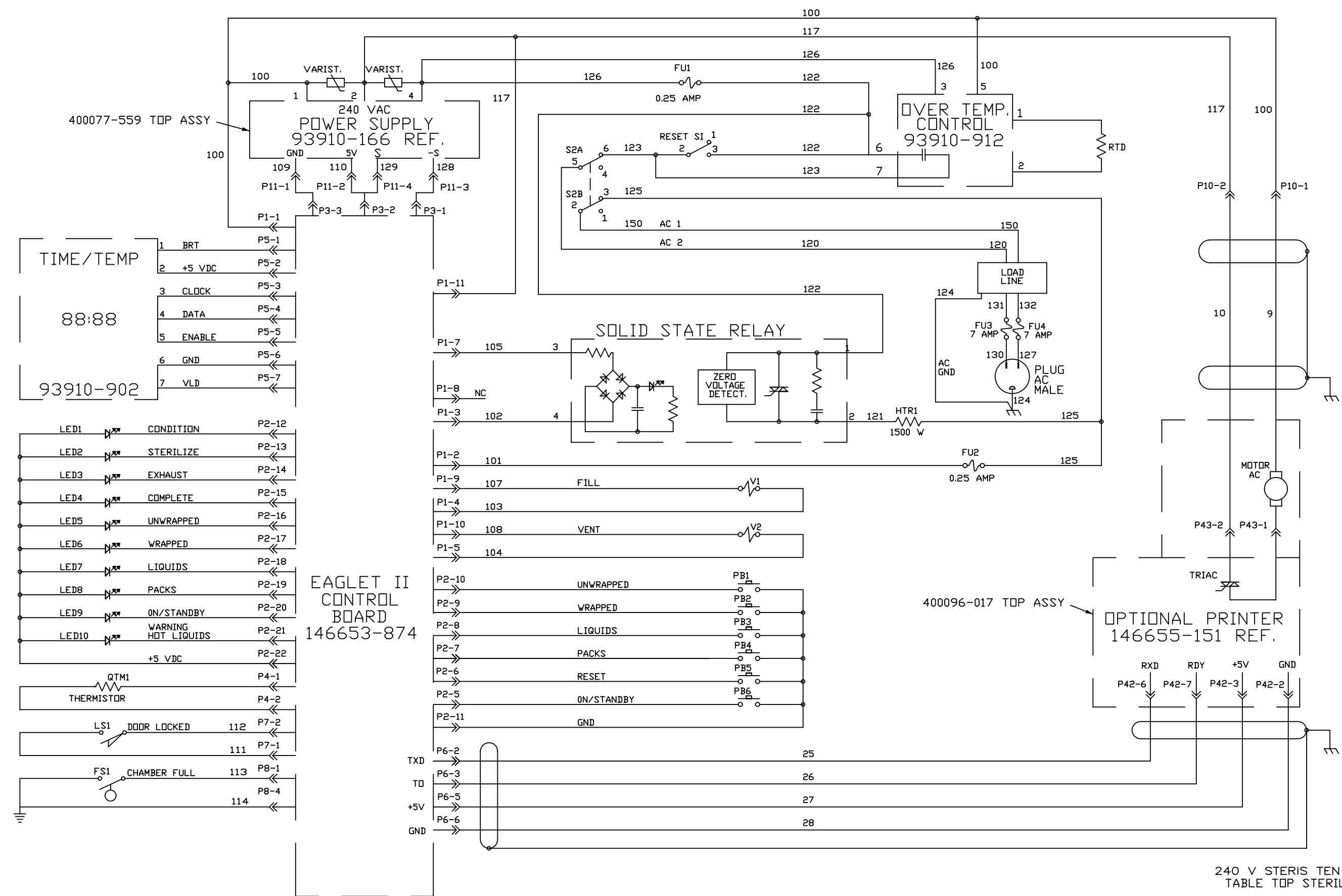


120 V STERIS TEN SIXTEEN PLUS  
TABLE TOP STERILIZER

141214-437

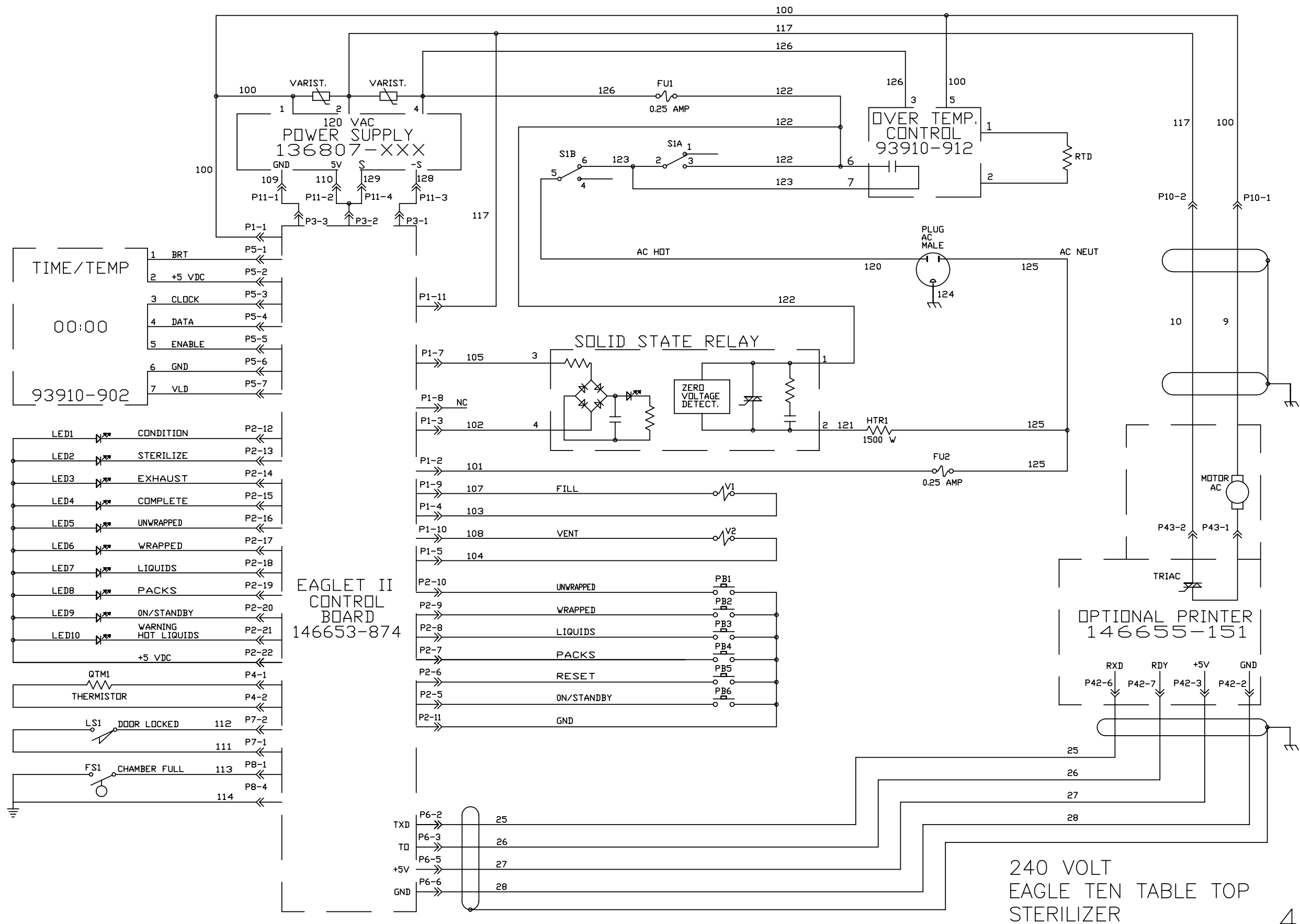


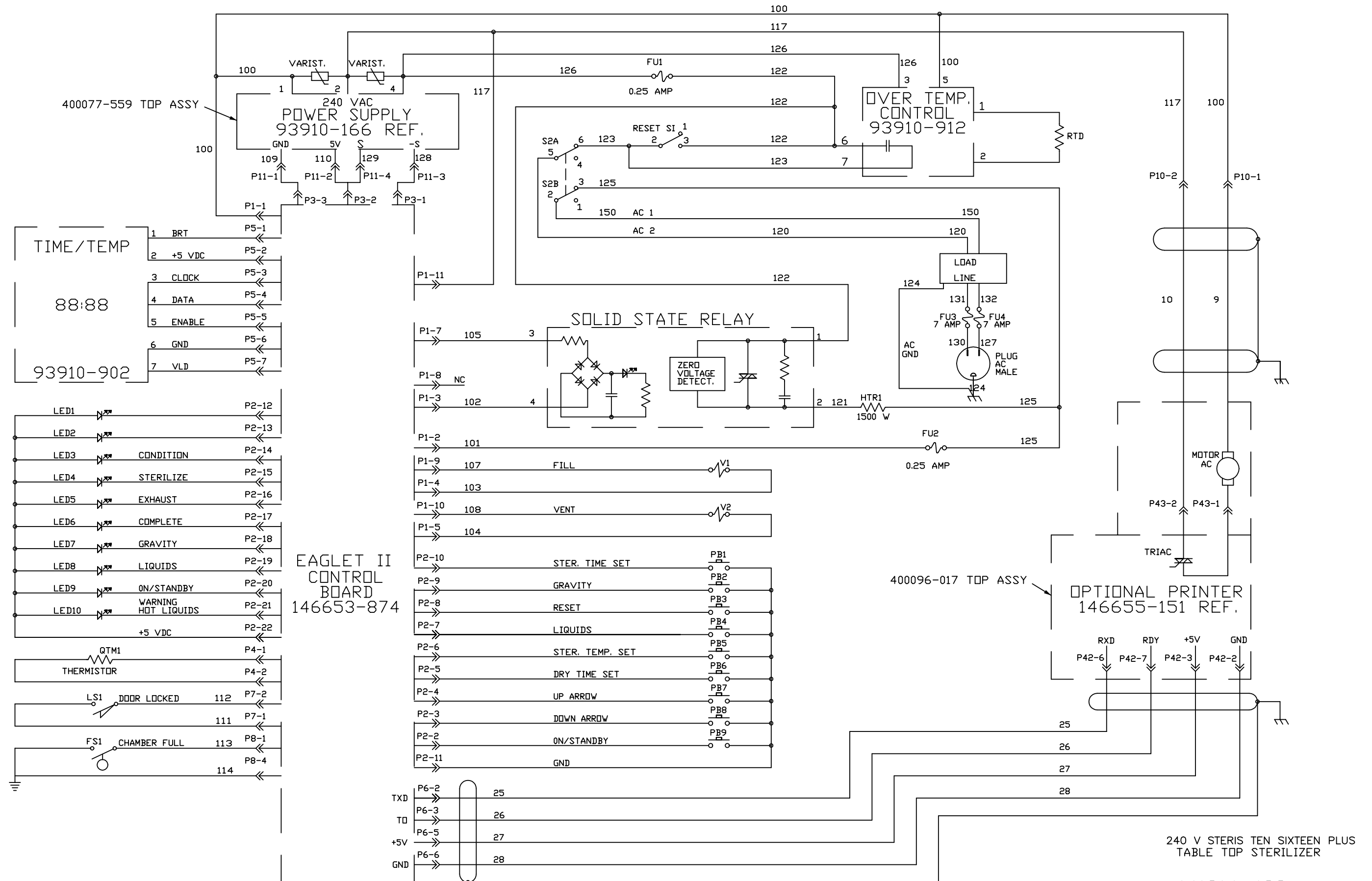


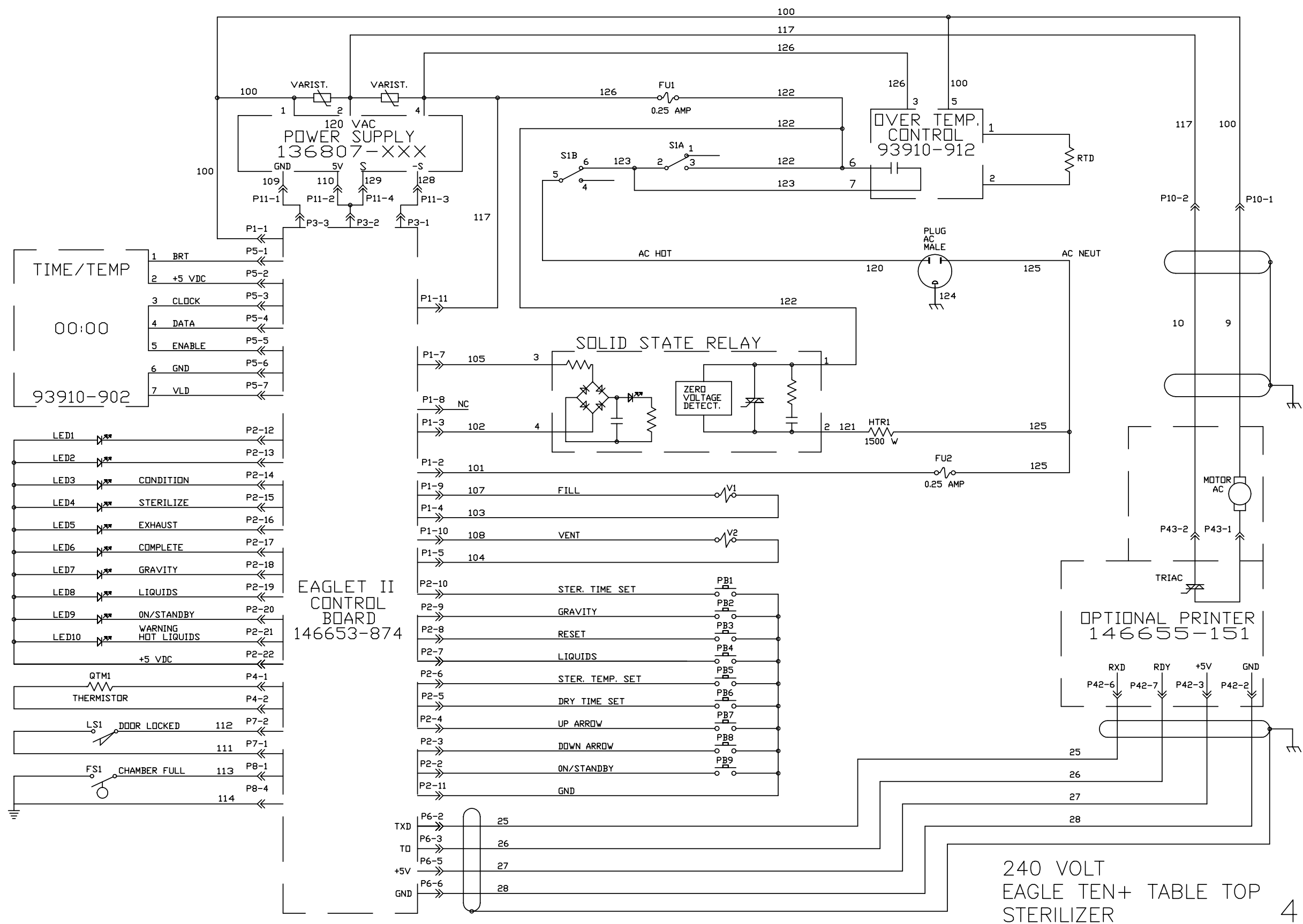


240 V STERIS TEN SIXTEEN  
TABLE TOP STERILIZER

141214-440







## Section 5: Inspection and Maintenance



**WARNING - PERSONAL INJURY HAZARD:** Repairs and adjustments to this equipment must be made by fully qualified personnel. Nonroutine maintenance performed by inexperienced, unqualified personnel or installation of unauthorized parts could cause personal injury, invalidate the warranty, or result in costly damage. Contact STERIS Engineering Service regarding service options.

### 5.0 GENERAL

The following maintenance procedures and intervals are recommended for safe and proper operation. This frequency is the minimum and should be increased with usage of the STERIS Tabletop Steam Sterilizer.

A Preventive Maintenance Agreement is available whereby maintenance, adjustments, and replacement of worn parts are performed by a qualified technician on a scheduled basis to ensure peak equipment performance and to avoid unscheduled downtime. Contact STERIS or dealer representative for more information.

Section 5.3 is a Preventive Maintenance Guide which STERIS suggests the facility keep. Such a guide will be helpful to ensure regular maintenance.

### 5.1 ROUTINE MAINTENANCE



**WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading, performing maintenance, or cleaning.



**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** To avoid equipment damage, use deionized or distilled water only for filling reservoir and cleaning. Do not clean with solvents or any products containing hydrocarbons.



**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** Sterilization of chloride-containing solutions can cause chamber corrosion and is not recommended by the manufacturer. However, if chloride-containing solutions must be processed, clean the chamber, filter, and water level probe after each use.

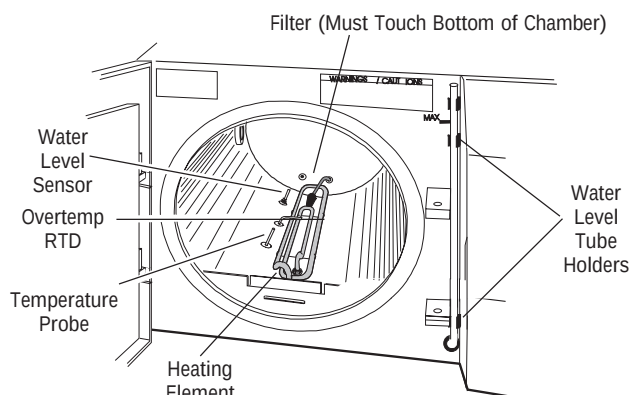


**Figure 5-1**  
**Cleaning the Chamber**

#### 5.1.1 Daily (see Figure 5-1)

##### 5.1.1.1 Cleaning the Chamber

1. Inspect the cabinetry for signs of damage or misaligned parts.
2. Remove the bottom shelf and trays from the chamber. Use only deionized or distilled water to wash the inside of sterilizer, bottom shelf, and trays with a damp cloth, and, if necessary, a mild detergent solution (products are available from STERIS or dealer representative). When cleaning, be careful not to damage the three sensors located to the left of the heating element.



**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** Never use wire brushes, abrasives, steel wool, solvents, hydrocarbon products, or chloride-containing products to clean door, chamber, and gaskets.

3. Rinse chamber thoroughly with deionized or distilled water to remove all detergent residue.
4. Dry chamber with a lint-free cloth.
5. Verify that the filter is securely in place and is resting on the bottom of the chamber.
6. Check door gasket and wipe clean with a cloth dampened with deionized or distilled water only. Replace it if it has become deformed, brittle, cracked, or leaks under pressure (see “Cleaning / Replacing Door Gasket”).

**NOTE:** Clean chamber after each use if sterilizing chloride-containing solutions.

#### 5.1.1.2 Cleaning Water Level Probe



**WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading, performing maintenance, or cleaning.



**WARNING - PERSONAL INJURY HAZARD:** Disconnect power to sterilizer and allow sterilizer to cool to room temperature before performing any maintenance procedure.

1. Remove bottom shelf from chamber to gain access to the water level probe.
2. Using a Scotch Brite™ (3M) pot scrubbing pad (available locally), clean the probe by placing the pad over the probe and rotating in a circular motion (Figure 5-2).
3. If no water is present and the probe is dry and clean, error code "E03" should clear from the display. If the error code remains, contact the dealer service representative.
4. Place the bottom shelf back into the chamber and make sure the front edge of the shelf is inserted into the tab for shelf support. Be careful not to dislodge filter when reinserting the bottom shelf.

#### 5.1.2 Weekly

*NOTE: When draining the reservoir, drain water into at least a 1-gal (3.8-L) container. Wipe up any spilled water.*



**WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading or cleaning.

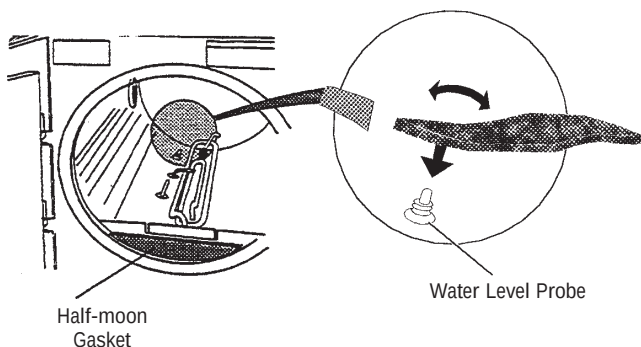


**Figure 5-2**  
**Clean Water Level Probe**



**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** Never use wire brushes, abrasives, steel wool, solvents, hydrocarbon products, or chloride-containing products to clean door, chamber, and gaskets.

#### 5.1.2.1 Draining Chamber (Figure 5-3)

1. Place or hold a container directly in front of the sterilizer below countertop level. The sterilizer should be positioned about 6" (152 mm) from the countertop edge.
2. Drain the reservoir by opening the chamber door and removing the water level tube from its holders, then twist elbow fitting 90° to the left (Figure 5-4a). With forefinger covering the end of tube, lower tube into the container to drain the reservoir.
3. Reinstall the water level tube into its holders.
4. Verify that the water level tube is in an upright position and secure in its holders (Figure 5-4b). Make sure that the water level tube is not contacting or interfering with the "Door Latched" sensor lever arm.
5. Check that the door gasket is not sticking to the end ring. Clean the end ring with a damp cloth or, if necessary, with a mild detergent solution (available from STERIS or dealer representative).
6. Clean the chamber filter by reverse flushing with water. Refer to Cleaning / Replacing the Chamber Filter.

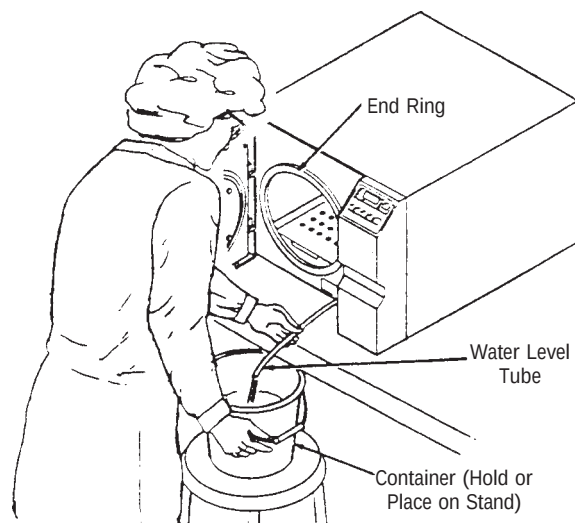


**Figure 5-3**  
**Draining Chamber**

### 5.1.2.2 Cleaning/Replacing Chamber Filter

**WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading or cleaning.

**WARNING - PERSONAL INJURY HAZARD:** Disconnect power to sterilizer and allow sterilizer to cool to room temperature before performing any maintenance procedure.

1. Remove bottom shelf from chamber to gain access to the filter.
2. Pull filter out of fill port on the back wall of the chamber.

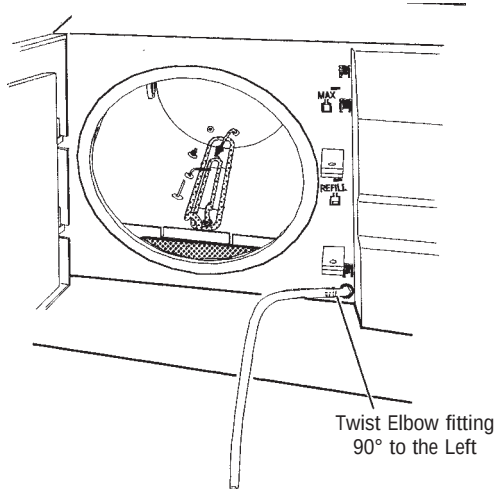


Figure 5-4a  
Water Level Tube Position

3. If filter appears clogged or coated with debris, clean by reverse flushing with water (Figure 5-5). If filter cannot be effectively cleaned, (i.e., it remains clogged) replace the filter (P-129357-645).
4. After changing/replacing filter, insert tube end of filter into the fill port (located on the bottom right portion of the chamber rear wall). After inserting, turn filter so the tip rests on the bottom of the chamber near the center line (see Figures 5-6 and 5-7).
5. Place bottom shelf back into chamber and make sure the front edge of the shelf is inserted into tab for shelf support (Figure 5-7). Be careful not to dislodge filter when reinserting the bottom shelf.

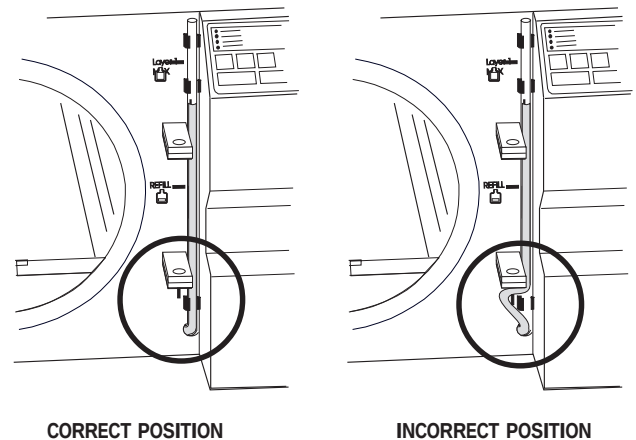


Figure 5-4b  
Water Level Tube Position

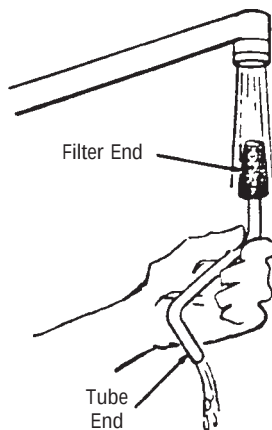


Figure 5-5  
Reverse Flushing Filter

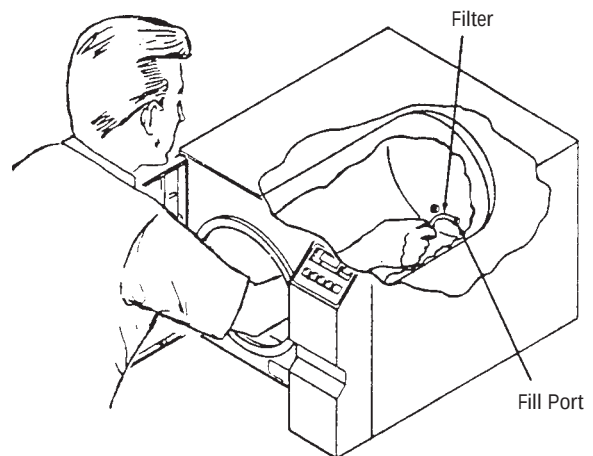


Figure 5-6  
Reinserting Filter

### 5.1.3 Quarterly

#### 5.1.3.1 Check Chamber Safety Valve (Figure 5-8)

1. Verify sterilizer is cool.
2. Inspect safety valve for accumulations of rust, scale, or other foreign substances which would prevent free operation of the valve. The discharge pipe opening must be clear and free from restrictions.
3. Operate safety valve several times. The pull ring should move freely and return to the closed position after each operation.
4. Follow operating instructions found in Section 3 and allow chamber to reach operating pressure.

**WARNING - BURN HAZARD:** Beware of steam escaping from safety valve. To prevent burns, wear gloves or use an extension device if it becomes necessary to operate the pull ring.

5. Check safety valve for steam leakage. If valve is leaking, operate the pull ring several times to see if the leakage will stop. **Avoid letting moisture get under insulation on chamber.**
6. If leakage continues, discontinue operation of sterilizer and replace the safety valve.

#### 5.1.4 As Necessary

##### 5.1.4.1 Cleaning/Replacing Door Gasket

**WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading, performing maintenance, or cleaning.

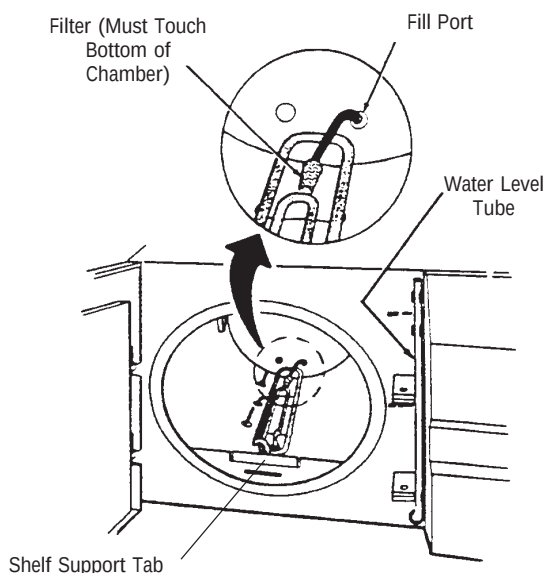


**Figure 5-7**  
Proper Filter Placement

**WARNING - PERSONAL INJURY HAZARD:** Disconnect power to sterilizer and allow sterilizer to cool to room temperature before performing any maintenance procedure.

**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** Never use wire brushes, abrasives, steel wool, solvents, hydrocarbon products, or chloride-containing products to clean door, chamber, and gaskets.

1. Door gasket, end ring, and gasket groove must be completely clean or leaking may occur. To clean, thoroughly wipe each item with a lint-free cloth dampened with deionized or distilled water only.

*NOTE: Even small particle buildup may cause leakage. A thorough examination of the gasket, end ring and gasket groove is necessary before continuing operation.*

2. If gasket cannot be effectively cleaned with a damp cloth, remove and discard the old gasket (Figure 5-9).
3. Clean slot and end ring with a cloth dampened with deionized or distilled water only.
4. Using a cloth dampened with deionized or distilled water only, wipe clean the new gasket (P-426637-261). Then slide the outer edge of gasket into the door slot a short section at a time without stretching it in the process. If the gasket appears too long, DO NOT CUT IT. Start the process again, compressing short sections into slot, until the entire length is inserted (Figure 5-9).

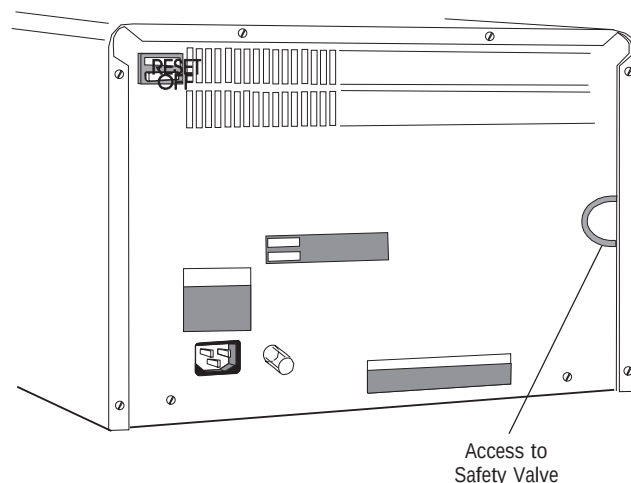


**Figure 5-8**  
Checking Chamber Safety Valve (Rear View of Unit)

5. Check that the gasket is fully inserted into door slot around the entire perimeter (Figure 5-9).

#### 5.1.4.2 Half-moon Gasket Installation Instructions



**WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading, performing maintenance, or cleaning.



**WARNING - PERSONAL INJURY HAZARD:** Disconnect power to sterilizer and allow sterilizer to cool to room temperature before performing any maintenance procedure.

1. Peel off the gasket that is being replaced. Clean off the remaining adhesive by rubbing with your finger or paper towel.
2. Apply a thin layer of adhesive to the chamber wall, as shown in Figure 5-10. Apply the adhesive in the same pattern as the old adhesive on the old gasket. Leave a bare area in the middle of the gasket so that the tab for the bottom shelf does not get any adhesive on it (see Figure 5-10).
3. Put the gasket against the front of the chamber and press it down firmly; smooth with your fingers or a paper towel to remove any air under the gasket. Wipe off any excess adhesive with a damp paper towel. **BE SURE TO WIPE OFF ANY ADHESIVE THAT ROLLED ONTO THE TAB FOR THE BOTTOM SHELF.**
4. Close the door and run a 10-minute cycle to cure the adhesive. (The adhesive requires 24 hours to cure at room temperature.)

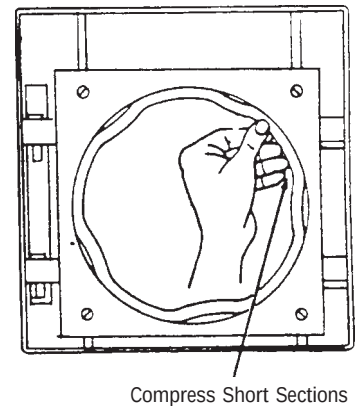
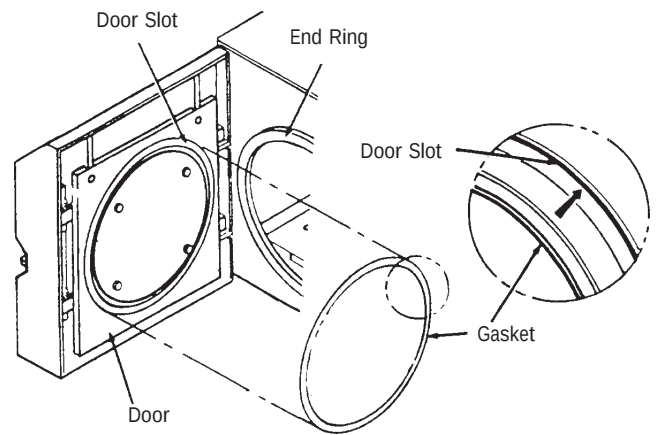


**Figure 5-9**  
**Door Gasket Replacement**

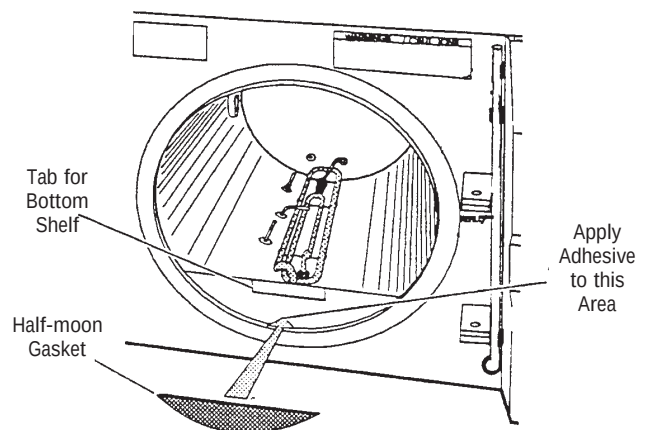


**Figure 5-10**  
**Install Half-moon Gasket**

### 5.1.4.3 Cleaning Media Spills and Clogged Piping

**WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading, performing maintenance, or cleaning.

**WARNING - PERSONAL INJURY HAZARD:** Disconnect power to sterilizer and allow sterilizer to cool to room temperature before performing any maintenance procedure.

This procedure should be followed when piping is suspected to be clogged with media.

1. Open door and manually fill chamber with deionized water until the heater is covered with water.
2. Close and lock the chamber door.
3. Start a 270°F, 3-minute (unwrapped) cycle. The "E03" error message will appear on the display prior to starting cycle.
4. After the cycle is complete (and the chamber is cool), drain the reservoir, then clean the chamber, filter, door gasket, and water level sensor as described earlier in this section.

### 5.1.4.4 Replacing Printer Paper (if unit is equipped with printer) (Figure 5-11)

1. Pull out printer assembly (Figure 5-12).
  - a. Open printer door by gently grasping both sides and pulling down.
  - b. Slide printer assembly out of unit.
  - c. Hold printer by the motor and remove take-up reel with used printer paper.

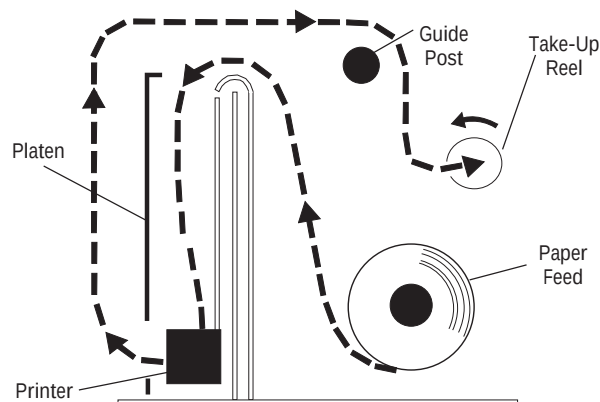


Figure 5-11  
Paper Threading Diagram

- d. Remove used printer paper from take-up reel and file.
2. Install new paper spool onto paper feed post (Figure 5-13).

*NOTE: Check that the paper roll is positioned correctly. Thermal paper will not print if paper roll is inserted backward.*

3. Swing platen down (Figure 5-14).
  - a. Pull approximately 8" (203 mm) of paper out from roll and feed under guide post.
  - b. Fold and crease paper end into a point.
4. Slide pointed end of paper into slot at top of printer until it exits from the front side of printer (Figure 5-15).
  - a. Paper should extend out from printer approximately 1" (25 mm).
5. Raise platen to operating position (Figure 5-16).
  - a. Pointed end of paper should thread itself through slot in platen.
  - b. Platen will snap in place under clip.
6. Grasp the pointed end of the paper, and in an upward motion to protect the print head, pull out 10 to 12" (254 to 304 mm) of paper (Figure 5-17).
7. Insert the pointed end of the paper into the slot of take-up reel and rotate in the direction shown to secure the paper in the slot (Figure 5-18).
8. Reinstall take-up reel onto the upper spindle (Figure 5-19).
  - a. Slide printer assembly into unit and close printer door.

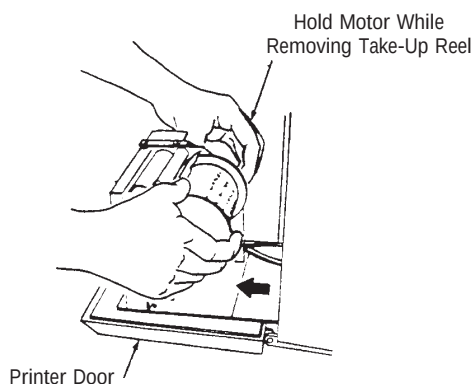


Figure 5-12  
Pull Out Printer Assembly

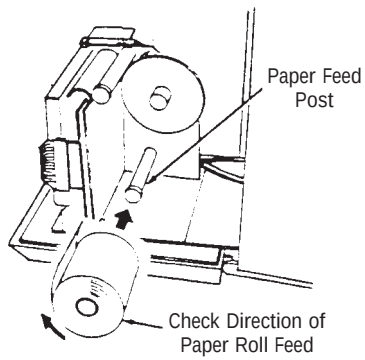


**Figure 5-13**

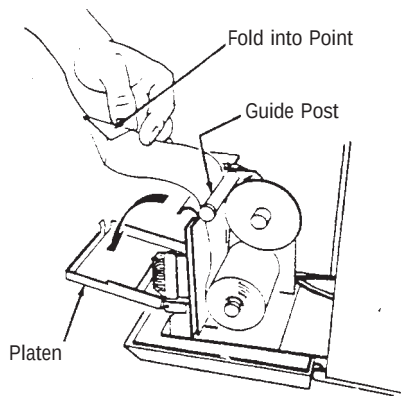


**Figure 5-14**

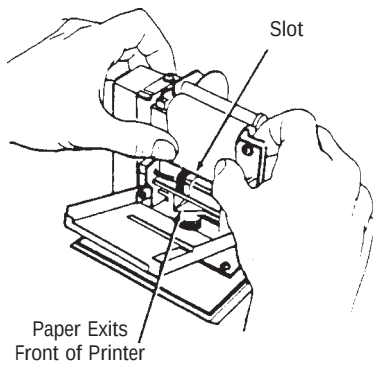


**Figure 5-15**

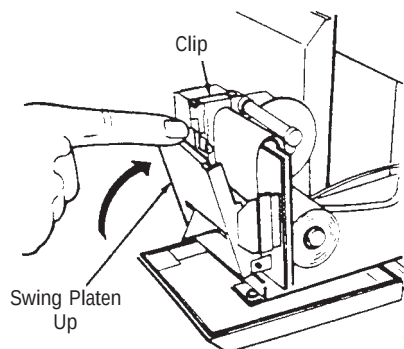


**Figure 5-16**

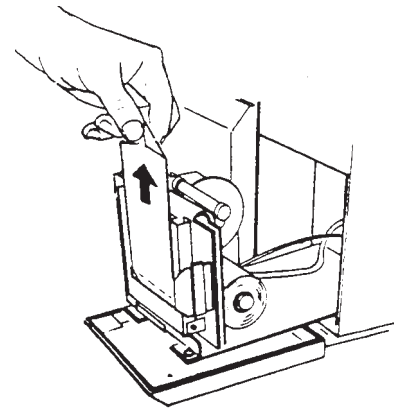


**Figure 5-17**

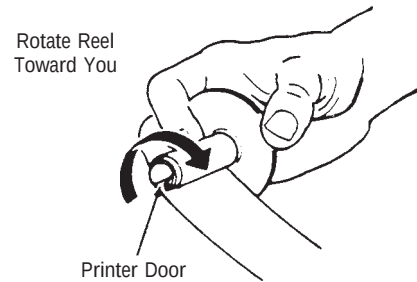


**Figure 5-18**

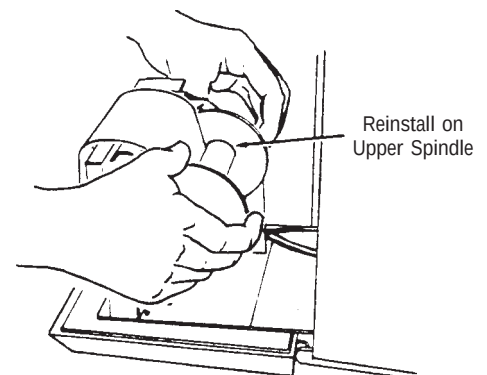


**Figure 5-19**

#### 5.1.4.5 Setting Temperature Units and Time/Date, STERIS Tabletop Steam Sterilizer (Figure 5-20)

**NOTE:** To set any of the following without going through each procedure, simply press and hold the RESET touch pad repeatedly until the appropriate "F" character is displayed. Then use the LIQUIDS or PACKS touch pads to change the setting.

##### SELECTING TEMPERATURE UNITS

1. Open sterilizer door.
2. Press and hold RESET touch pad (Figure 5-20) until -F1- appears on the front panel display and the buzzer sounds.
3. Press any cycle select touch pad to change the temperature units from degrees C to F or degrees F to C and set to the user's personal preference.
4. Press and hold the ON/STANDBY touch pad until the front panel display indicates -F0-; release as soon as the buzzer sounds. Control returns to ON ready mode.

##### SETTING CALENDAR YEAR

1. Press and hold RESET touch pad (Figure 5-20) until -F1- appears on the front panel display and the buzzer sounds.
2. Press RESET touch pad repeatedly until -F2- appears on the front panel display and the buzzer sounds.
3. Advance year by pressing the LIQUIDS touch pad. Decrease year by pressing the PACKS touch pad. Range is 0-99.
4. Press and hold the ON/STANDBY touch pad until the front panel display indicates -F0-; release as soon as the buzzer sounds. Control returns to ON ready mode.

##### SETTING CALENDAR MONTH

1. Press and hold RESET touch pad (Figure 5-20) until -F1- appears on the front panel display and the buzzer sounds.
2. Press RESET touch pad repeatedly until -F3- appears on the front panel display and the buzzer sounds.
3. Advance month by pressing the LIQUIDS touch pad. Decrease month by pressing the PACKS touch pad. Range is 01-12.
4. Press and hold the ON/STANDBY touch pad until the front panel display indicates -F0-; release as soon as the buzzer sounds. Control returns to ON ready mode.

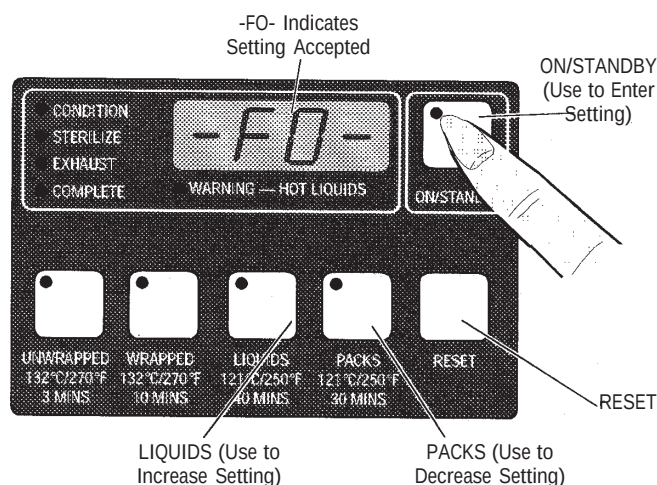


**Figure 5-20**  
Tabletop Steam Sterilizer Control Panel

##### SETTING CALENDAR DAY

1. Press and hold RESET touch pad (Figure 5-20) until -F1- appears on the front panel display and the buzzer sounds.
2. Press RESET touch pad repeatedly (Figure 5-20) until -F4- appears on the front panel display and the buzzer sounds.
3. Advance day by pressing the LIQUIDS touch pad. Decrease day by pressing the PACKS touch pad. Range is 1-31.
4. Press and hold the ON/STANDBY touch pad until the front panel display indicates -F0-; release as soon as the buzzer sounds. Control returns to ON ready mode.

##### SETTING CALENDAR HOUR

1. Press and hold RESET touch pad (Figure 5-20) until -F1- appears on the front panel display and the buzzer sounds.
2. Press RESET touch pad repeatedly (Figure 5-20) until -F5- appears on the front panel display and the buzzer sounds.
3. Advance hour by pressing the LIQUIDS touch pad. Decrease hour by pressing the PACKS touch pad. Range is 0-23.
4. Press and hold the ON/STANDBY touch pad until the front panel display indicates -F0-; release as soon as the buzzer sounds. Control returns to ON ready mode.

### SETTING CALENDAR MINUTE

1. Press and hold RESET touch pad (Figure 5-20) until -F1- appears on the front panel display and the buzzer sounds.
2. Press RESET touch pad repeatedly (Figure 5-20) until -F6- appears on the front panel display and the buzzer sounds.
3. Advance minute by pressing the LIQUIDS touch pad. Decrease minute by pressing the PACKS touch pad. Range is 0-59.
4. Press and hold the ON/STANDBY touch pad until the front panel display indicates -F0-; release as soon as the buzzer sounds. Control returns to ON ready mode.

#### 5.1.4.6 Verifying and Setting Control Parameters, STERIS Tabletop Steam Sterilizer (Plus Series) (Figure 5-21)

*NOTE: To set any of the following parameters without going through each procedure, press the RESET touch pad repeatedly until the appropriate "F" character is displayed. Then use the increase or decrease touch pads to change the parameter.*

#### SELECTING TEMPERATURE UNITS

1. Open sterilizer door.
2. Press and hold the RESET touch pad (Figure 5-21) until -F1- appears on the front panel and the buzzer sounds.
3. Press any cycle select touch pad to change the temperature units from degrees C to F or degrees F to C and set to the user's personal preference.
4. Press and hold the ON/STANDBY touch pad until the front panel display indicates -F0-; release as soon as the buzzer sounds. Control returns to ON ready mode.

#### SETTING CALENDAR YEAR

1. Press and hold RESET touch pad (Figure 5-21) until -F1- appears on the front panel display and the buzzer sounds.
2. Press RESET touch pad repeatedly (Figure 5-21) until -F2- appears on the front panel display and the buzzer sounds.
3. Advance year by pressing the increase touch pad. Decrease year by pressing the decrease touch pad. Range is 0-99.
4. Press and hold the ON/STANDBY touch pad until the front panel display indicates -F0-; release as soon as the buzzer sounds. Control returns to ON ready mode.

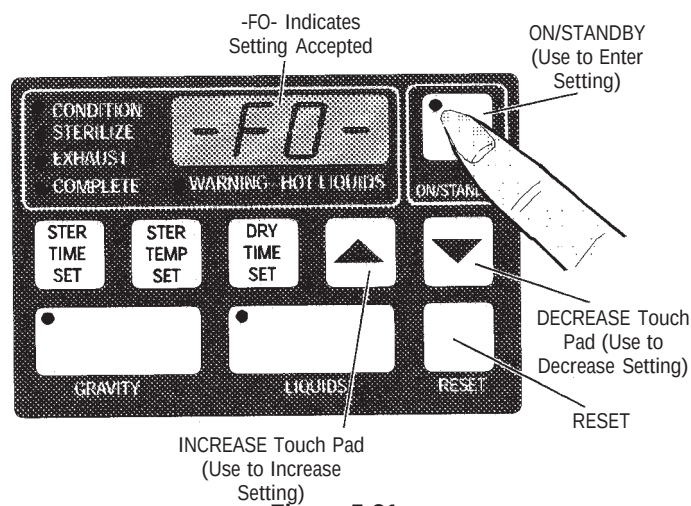


Figure 5-21

Tabletop Steam Sterilizer (Plus Series) Control Panel

### SETTING CALENDAR MONTH

1. Press and hold RESET touch pad (Figure 5-21) until -F1- appears on the front panel display and the tone sounds.
2. Press RESET touch pad repeatedly until -F3- appears on the front panel display and the buzzer sounds.
3. Advance month by pressing the increase touch pad. Decrease month by pressing the decrease touch pad. Range is 1-12.
4. Press and hold the ON/STANDBY touch pad until the front panel display indicates -F0-; release as soon as the buzzer sounds. Control returns to ON ready mode.

### SETTING CALENDAR DAY

1. Press and hold RESET touch pad (Figure 5-21) until -F1- appears on the front panel display and the buzzer sounds.
2. Press RESET touch pad repeatedly until -F4- appears on the front panel display and the buzzer sounds.
3. Advance day by pressing the increase touch pad. Decrease day by pressing the decrease touch pad. Range is 1-31.
4. Press and hold the ON/STANDBY touch pad until the front panel display indicates -F0-; release as soon as the buzzer sounds. Control returns to ON ready mode.

## SETTING CALENDAR HOUR

1. Press and hold RESET touch pad (Figure 5-21) until -F1- appears on the front panel display and the buzzer sounds.
2. Press RESET touch pad repeatedly until -F5- appears on the front panel display and the buzzer sounds.
3. Advance hour by pressing the increase touch pad. Decrease hour by pressing the decrease touch pad. Range is 0-23.
4. Press and hold the ON/STANDBY touch pad until the front panel display indicates -F0-; release as soon as the buzzer sounds. Control returns to ON ready mode.

## SETTING CALENDAR MINUTE

1. Press and hold RESET touch pad (Figure 5-21) until -F1- appears on the front panel display and the buzzer sounds.
2. Press RESET touch pad repeatedly until -F6- appears on the front panel display and the buzzer sounds.
3. Advance minute by pressing the increase touch pad. Decrease minute by pressing the decrease touch pad. Range is 00-59.
4. Press and hold the ON/STANDBY touch pad until the front panel display indicates -F0-; release as soon as the buzzer sounds. Control returns to ON ready mode.

## 5.2 SERVICE DIAGNOSTIC TESTS – STERIS TABLETOP STEAM STERILIZERS

### 5.2.1 Verifying Touch Panel LEDs

1. Press and hold RESET touch pad repeatedly (Figure 5-20 or 5-21) until -F7- appears on the front panel display. Hold until the buzzer sounds.
2. ON/STANDBY and all cycle select LEDs will illuminate.
3. Press and hold any cycle select touch pad; all remaining panel lights will illuminate and the ON/STANDBY and cycle select LEDs will extinguish.

### 5.2.2 Verifying Door Switch and Water Level Probe

1. Press and hold RESET touch pad repeatedly (Figure 5-20 or 5-21) until -F7- appears on the front panel display. Hold until the buzzer sounds.
2. Simultaneously press and hold the RESET and ON/STANDBY touch pads until -F8- appears on the display; release when buzzer sounds.
3. After the tone sounds, the display shows the status of the Door Limit Switch and Water Level Sensor as "1 1"; "1" signifying an open switch and "0" signifying a closed switch.
4. Activate the door limit switch; first digit must read "0". Deactivate the door limit switch; first digit must read "1".
5. Simultaneously touch the end of the water level sensor and inside chamber wall; second digit must read "0". Release and the second digit must read "1".
6. Press and hold RESET touch pad until -F8- appears on display. Press and hold the ON/STANDBY touch pad until the front panel display indicates -F0-; release as soon as the buzzer sounds. Control returns to ON ready mode.

### 5.2.3 Verifying Heater, Relay, and Valve Functions

1. Press and hold RESET touch pad repeatedly (Figure 5-20 or 5-21) until -F7- appears on the front panel display. Hold until the buzzer sounds.
2. Simultaneously press and hold the RESET and ON/STANDBY touch pads until -F8- appears on the display; press and hold RESET touch pad until -F9- appears, release when buzzer sounds.
3. Press and release WRAPPED touch pad (STER TIME SET on plus series); audible click verifies that relay is activated. Second digit on the display must be "1".
4. Press and release UNWRAPPED touch pad (STER TEMP SET on plus series); first digit on the display must be "1" indicating that the heater is activated. Immediately press and release the WRAPPED and UNWRAPPED touch pads to turn off the relay and heater; first two digits will be "0 0".

5. Press and release LIQUIDS touch pad (DRY TIME SET on plus series); third digit on display must read “1”. To activate the fill valve (indicated by an audible click), touch top of solenoid core with a screwdriver. Touch again to deactivate the fill valve; third digit must read “0”.
6. Press and release PACK touch pad (UP arrow on plus series); fourth digit on display must read “1”. To activate the vent valve (indicated by an audible click), touch top of solenoid core with a screwdriver. Touch again to deactivate the vent valve; third digit must read “0”.
7. Press and hold RESET touch pad until -F8- appears on display. Press and hold the ON / STANDBY touch pad until the front panel display indicates -F0-; release as soon as the buzzer sounds. Control returns to ON ready mode.

## 5.3 RECOMMENDED PREVENTIVE MAINTENANCE - STERIS TABLETOP STEAM STERILIZERS

Recommended frequency of inspection is bimonthly. Usage, utility conditions may require more or less inspections. Tasks are defined on a yearly basis.

|                                                                                                                                        | Min.<br>Freq. |
|----------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>1.0 PREPARATION FOR PREVENTIVE MAINTENANCE</b>                                                                                      |               |
| 1.1 Discuss equipment with operators and check printouts.                                                                              | Each          |
| 1.2 Follow appropriate safety procedures; Prepare unit for PM.                                                                         | Each          |
| <b>2.0 DOOR ASSEMBLY</b>                                                                                                               |               |
| 2.1 Verify proper door and door switch operation. Adjust switch if needed.                                                             | Each          |
| 2.2 Verify door alignment with end ring and check condition of door gasket for wear and tear. Make adjustments/replacements as needed. | Each          |
| 2.3 Verify that half-moon gasket is attached and undamaged.                                                                            | Each          |
| 2.4 Verify proper operation of door lock mechanism. Check for wear.                                                                    | Each          |
| 2.5 Check for loose screws and tighten.                                                                                                | Each          |
| 2.6 Lubricate hinge and hinge pins. (DO NOT lubricate locking mechanism.)                                                              | Each          |
| <b>3.0 PIPING COMPONENTS</b>                                                                                                           |               |
| 3.1 Rebuild fill valve.                                                                                                                | 1X/yr         |
| 3.2 Rebuild vent valve.                                                                                                                | 1X/yr         |
| 3.3 Replace air vent (steam trap).                                                                                                     | 1X/yr         |
| 3.4 Chamber gauge - Verify proper operation. Replace if needed.                                                                        | Each          |
| <b>4.0 CHAMBER AND WATER RESERVOIR</b>                                                                                                 |               |
| 4.1 Rinse/clean chamber filter. Verify proper attachment to piping.                                                                    | Each          |
| 4.2 Replace chamber filter.                                                                                                            | 1X/yr         |
| 4.3 Check for residue in water reservoir. Clean if needed.                                                                             | Each          |
| 4.4 Verify that reservoir gasket is properly attached and undamaged.                                                                   | Each          |
| <b>5.0 CONTROL</b>                                                                                                                     |               |
| 5.1 Verify that printer and paper take-up operate properly. Check printout for darkness, missing dots, etc.                            | Each          |
| 5.2 Verify that all the touch pads function properly.                                                                                  | Each          |
| 5.3 Verify that the date and time are correct. If not, correct.                                                                        | Each          |
| 5.4 Verify operation of the battery backed RAM. Replace as needed.                                                                     | Each          |
| 5.5 Verify that the buzzer is working.                                                                                                 | Each          |
| 5.6 Verify temperature displays/printouts with potentiometer.                                                                          | Each          |
| 5.7 Verify proper operation of heaters.                                                                                                | Each          |
| 5.8 Verify proper operation of overtemp control.                                                                                       | Each          |
| 5.9 Verify proper operation of the water level probe.                                                                                  | Each          |

### 5.3 RECOMMENDED PREVENTIVE MAINTENANCE - STERIS TABLETOP STEAM STERILIZERS (CONTINUED)

Recommended frequency of inspection is bimonthly; utility conditions may require more or less inspections. Tasks are defined on a yearly basis.

|                                                                                                                              | Min.<br>Freq. |
|------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>6.0 FINAL CHECKOUT AND TEST</b>                                                                                           |               |
| 6.1 Clean dirt and lint from components. Check all wiring, terminals, and socket connections for damage or fraying.          | Each          |
| 6.2 Verify that unit has proper labels (caution, warning).                                                                   | Each          |
| 6.3 Run machine through each cycle to verify proper operation. Check all displays and printouts. Note on tape "STERIS TEST." | Each          |
| 6.4 Reinstall any panel or cover removed. Check area to ensure removal of all materials used during inspection.              | Each          |
| 6.5 Check electrical cord for damage or fraying.                                                                             | Each          |
| 6.6 Notify customer that PM inspection is complete.                                                                          | Each          |

### 5.4 TROUBLESHOOTING AND ERROR CODE CHARTS - STERIS TABLETOP STEAM STERILIZERS



**WARNING - PERSONAL INJURY HAZARD:** Repairs and adjustments to this equipment must be made by fully qualified personnel. Nonroutine maintenance performed by inexperienced, unqualified personnel or installation of unauthorized parts could cause personal injury, invalidate the warranty, or result in costly damage. Contact STERIS Engineering Service regarding service options.

This section describes the types of sterilizer malfunctions likely to occur, and indicates probable causes.

1. Use the following Troubleshooting Chart and Error Code Chart to identify problem and probable cause.
2. Locate parts in Section 8 or 9, **ILLUSTRATED PARTS BREAKDOWN**.
3. If you are unable to correct problem with use of this Troubleshooting Chart, or if a problem occurs that is not described on the chart, please call a factory-trained technician. **Never** permit unqualified persons to work on the sterilizer.



**Do not remove or replace printed circuit boards unless facility power is off and electrostatic precautions are taken.**

## TROUBLESHOOTING CHART

| PROBLEM                                                                   | POSSIBLE CAUSE AND/OR CORRECTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. No power to unit - control panel remains dark when unit is powered up. | <ol style="list-style-type: none"> <li>1) Unit is not plugged into outlet -&gt; plug unit into a properly grounded outlet.</li> <li>2) POWER ON/RESET switch is not turned ON -&gt; turn ON.</li> <li>3) Check facility power source -&gt; turn ON.</li> <li>4) Check overtemperature control -&gt; replace if needed.</li> <li>5) Check RTD sensor -&gt; replace if needed.</li> <li>6) Check fuse FU1 -&gt; replace if needed.</li> <li>7) Check 120 VAC input to power supply assembly.</li> <li>8) Check 5 VDC output from power supply -&gt; replace if needed.</li> <li>9) Check rocker switch -&gt; replace if needed.</li> <li>10) Replace PC Board (Section 7.2).</li> </ol> |
| 2. One or more legends on control panel fail to light.                    | <ol style="list-style-type: none"> <li>1) Confirm by testing (Service Routine, -F7-). If legend fails to light -&gt; replace time/temp display.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 3. Unable to start cycle (unit displays "DOOR").                          | <ol style="list-style-type: none"> <li>1) Chamber door open -&gt; close and lock door.</li> <li>2) Check continuity of touch pad when pressed (refer to appropriate schematic) -&gt; replace touch pad if needed.</li> <li>3) Check continuity of door switch -&gt; replace switch if necessary (refer to appropriate schematic).</li> <li>4) Replace PC Board (Section 7.2).</li> </ol>                                                                                                                                                                                                                                                                                              |
| 4. Water continues entering chamber after FILL phase is complete.         | <ol style="list-style-type: none"> <li>1) Fill valve has failed in open position -&gt; repair or replace valve.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 5. E13 is displayed. No water enters chamber during FILL phase.           | <ol style="list-style-type: none"> <li>1) Check for water in chamber. <ol style="list-style-type: none"> <li>a. If no water in chamber, check reservoir for adequate supply.</li> <li>b. Clean or replace chamber filter.</li> </ol> </li> <li>2) If water in chamber, <ol style="list-style-type: none"> <li>a. Clean water level probe (Section 5.1.1.2).</li> <li>b. Replace water level probe.</li> </ol> </li> <li>3) Check fill valve -&gt; replace if needed.</li> <li>4) Replace PC Board (Section 7.2).</li> </ol>                                                                                                                                                           |
| 6. Loss of pressure during cycle.                                         | <ol style="list-style-type: none"> <li>1) Air vent failed open -&gt; replace air vent (Section 7.6).</li> <li>2) Vent solenoid valve has failed open -&gt; repair or replace valve (Section 7.9).</li> <li>3) Heater failed -&gt; replace heater (Section 7.4).</li> <li>4) Safety valve has failed open -&gt; repair or replace valve (Figure 8-4).</li> <li>5) Faulty pressure gauge -&gt; check connections or replace gauge (Section 7.5).</li> <li>6) Loose connection or fitting -&gt; isolate and correct pressure leak.</li> </ol>                                                                                                                                            |

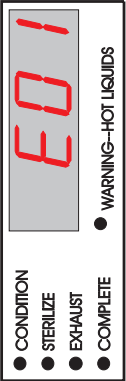
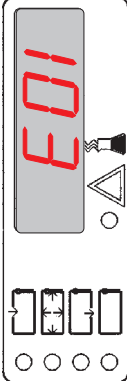
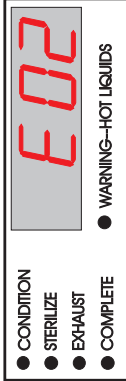
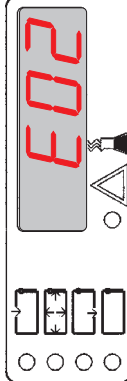
### TROUBLESHOOTING CHART (CONTINUED)

| PROBLEM                                      | POSSIBLE CAUSE AND/OR CORRECTION                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6. Loss of pressure during cycle (continued) | 7) Check Solid State Relay -> replace if needed.<br>8) Replace PC Board (Section 7.2)                                                                                                                                                                                                                                                                                                                                             |
| 7. Unable to open chamber door.              | 1) Cycle not complete -> wait for completion of exhaust phase.<br>2) Firmly push in on door handle while sliding handle up.<br>3) Door locking assembly stuck -> correct.<br>4) Faulty pressure gauge reading atmospheric pressure; however, slight pressure remains in chamber -> wait 5 minutes, then try again.                                                                                                                |
| 8. Water in chamber at end of cycle.         | 1) Filter assembly not properly installed or missing -> install filter assembly properly.<br>NOTE: Filter must rest on chamber bottom near centerline.                                                                                                                                                                                                                                                                            |
| 9. Loads are not drying.                     | 1) Door not opened to start dry phase -> open door.<br>2) Door switch failed -> replace switch (Figure 8-7).<br>3) Drain filter plugged -> clean filter.                                                                                                                                                                                                                                                                          |
| 10. Loads are not sterilized.                | 1) Improper pack preparation or sterilizer loading -> verify proper loading techniques.<br>2) Incorrect cycle parameters selected -> select correct parameters for load.<br>3) Bad air vent -> replace air vent (Section 7.6).<br>4) PC Board out of calibration -> recalibrate.                                                                                                                                                  |
| 11. Erratic unit behavior.                   | 1) Loose wire or cable -> firmly tighten wire or cable to connections.<br>2) Input voltage outside allowable limits (126 VAC max, 102 VAC min.) -> check power supply.<br>3) Unstable power supply (5 VDC) -> verify and replace.<br>4) PC Board defective -> replace PC Board (Section 7.2).                                                                                                                                     |
| 12. Unit will not exhaust.                   | 1) Plugged chamber filter -> unplug unit and let stand for 1 hour. Clean or replace filter (Section 7.12).<br>NOTE: Filter must rest on chamber bottom near centerline. If filter is plugged with media, refer to chamber filter cleaning instructions.<br>2) Check for 120 VAC across P1-5 and P1-10 during Exhaust phase -> if no voltage present, replace PC Board, if voltage present, replace or repair vent solenoid valve. |

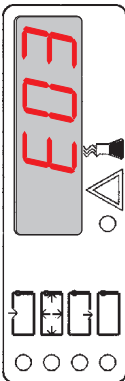
### TROUBLESHOOTING CHART (CONTINUED)

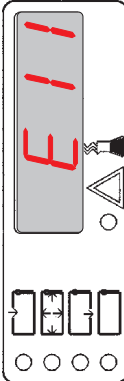
| PROBLEM                                  | POSSIBLE CAUSE AND/OR CORRECTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13. Unit does not reach set temperature. | <ol style="list-style-type: none"><li>1) Check steam trap for excessive or no leak -&gt; repair or replace trap (Figure 8-4).</li><li>2) Verify door gasket is not leaking -&gt; clean end frame and seal, and if necessary replace gasket.</li><li>3) Check safety valve for leaks -&gt; replace valve.</li><li>4) Check fill and vent solenoid valves for leaks -&gt; repair or replace valve(s).</li><li>5) Check resistance of the heater -&gt; if resistance is not approximately 10 m/ohm, replace heater.</li><li>6) With unit in cycle, measure 120 VAC across P9-9 and WIRE 101 on the AC receptacle. Voltage should be present -&gt; if no voltage, replace triac control assembly.</li></ol> |
| 14. Customer complaint of media loss.    | <ol style="list-style-type: none"><li>1) Refer to Section 5.1.4.3</li></ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## ERROR CODE TROUBLESHOOTING CHART

| Error Message                                                                         | Explanation                                   | Operator Action                                                                                                                                                                                                                                               | Where In Cycle              | Corrective Action                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Chamber temperature is less than 60°F (16°C). | <ul style="list-style-type: none"> <li>Open door and wait for unit to warm up. ("COLD" clears when chamber is greater than 60°F [16°C], and there is no mechanical problem.)</li> <li>If "COLD" does not clear, contact dealer service department.</li> </ul> | Control "ON," not in cycle. | <ol style="list-style-type: none"> <li>Open door and allow unit temperature to stabilize for 15 minutes.</li> <li>Use Ohmmeter to test thermistor resistance. Refer to Thermistor Temperatures vs. Resistance, Figure 7.3.</li> <li>If thermistor defective, replace.</li> <li>If thermistor operational, replace PC Board.</li> </ol> |
|    | "Shorted sensor failure."                     | <ul style="list-style-type: none"> <li>Wait for tone to sound.</li> <li>Press RESET touch pad, then retry.</li> <li>If error code is displayed again, contact dealer service department.</li> </ul>                                                           | Control "ON," not in cycle. | <ol style="list-style-type: none"> <li>Use Ohmmeter to test thermistor resistance. Refer to Thermistor Temperatures vs. Resistance, Figure 7.3.</li> <li>If thermistor defective, replace.</li> <li>If thermistor operational, replace PC Board.</li> </ol>                                                                            |
|    | Shorted temperature sensor.                   |                                                                                                                                                                                                                                                               |                             |                                                                                                                                                                                                                                                                                                                                        |
|  | "Broken sensor or heating failure."           | <ul style="list-style-type: none"> <li>Open the door and allow unit to stabilize at room temperature.</li> <li>Press RESET touch pad, then retry.</li> <li>If error code is displayed again, contact dealer service department.</li> </ul>                    | Condition phase.            | Same as "EO1."                                                                                                                                                                                                                                                                                                                         |
|  | Open temperature sensor.                      |                                                                                                                                                                                                                                                               |                             |                                                                                                                                                                                                                                                                                                                                        |

ERROR CODE TROUBLESHOOTING CHART (continued)

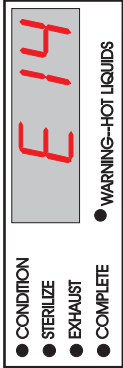
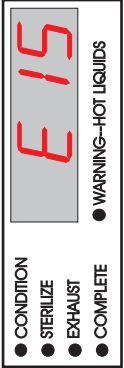
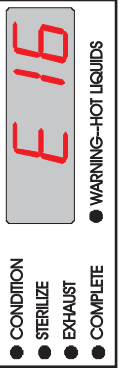
| Error Message                                                                       | Explanation                                                | Operator Action                                                                                                                                                                             | Where In Cycle              | Corrective Action                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | "Water in chamber."                                        | • Open door and remove trays and shelf. If water present (correct water level is when heater is completely immersed in water), replace shelf and trays and start a cycle.                   | Control "ON," not in cycle. | NOTE: This does not always indicate a component failure; the control will display "E03" if cycle was aborted after filling.                                                                                                  |
|  | Level sensor detects water. Possible water sensor failure. | • If no water is present, clean water level sensor (see section 5.1.1.2).<br>• Press RESET touch pad, then retry.<br>• If error code is displayed again, contact dealer service department. |                             | 1. Clean water level probe.<br>2. If no water in chamber:<br>a) Disconnect water level probe signal wire.<br>b) If "E03" goes away after pressing reset, replace probe.<br>c) If "E03" continues, replace PC Board Assembly. |

|                                                                                       |                             |                                                                                                                                             |                                    |                |
|---------------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------------|
|    | "Shorted sensor failure."   | • Wait for tone to sound.<br>• Press RESET touch pad, then retry.<br>• If error code is displayed again, contact dealer service department. | Condition Phase (includes "fill"). | Same as "E01." |
|  | Shorted temperature sensor. |                                                                                                                                             |                                    |                |

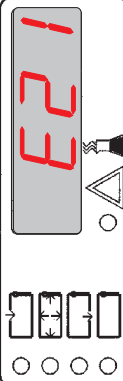
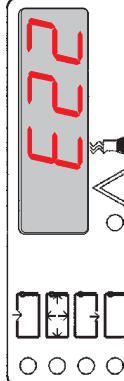
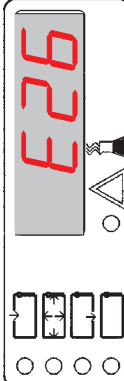
## ERROR CODE TROUBLESHOOTING CHART (continued)

| Error Message                                                                       | Explanation                                                  | Operator Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Where In Cycle   | Corrective Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | "Broken sensor failure."                                     | <ul style="list-style-type: none"> <li>Wait for tone to sound.</li> <li>Press RESET touch pad, then retry.</li> <li>If error code is displayed again, contact dealer service department.</li> </ul>                                                                                                                                                                                                                                                                                                | Condition Phase. | Same as "E01."                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                                                                     | Open temperature sensor.                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|  | "Too long to fill."                                          | <ul style="list-style-type: none"> <li>Carefully open chamber door.</li> <li>Check for water in the chamber.</li> <li>If no water is in the chamber, then check reservoir for adequate supply. Refill with deionized or distilled water if necessary. If not, clean the filter.</li> <li>If there is water in the chamber, then clean the water level sensor.</li> <li>Press RESET touch pad, then retry.</li> <li>If error code is displayed again, contact dealer service department.</li> </ul> | During "fill."   | <ol style="list-style-type: none"> <li>Inspect water level probe for corrosion or damage.</li> <li>Inspect water level probe signal wire for corrosion or damage.</li> <li>Test probe circuit as follows: <ol style="list-style-type: none"> <li>Remove probe from chamber and isolate from chassis ground.</li> <li>Close and lock chamber door, then start a cycle.</li> <li>Display will indicate "FILL."</li> <li>Touch probe tip to the chassis ground.</li> <li>Unit should now display chamber temperature.</li> <li>If temperature not displayed, remove signal wire from probe and touch signal wire to chassis ground.</li> <li>Unit should now display chamber temperature.</li> <li>If temperature was displayed in "f" and not in "d," replace the probe.</li> <li>If temperature was displayed in "d" and not in "f," replace the PC Board.</li> </ol> </li> </ol> |
|                                                                                     | Water level sensor failure or insufficient water in chamber. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

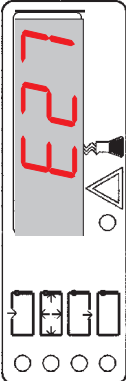
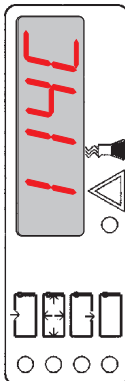
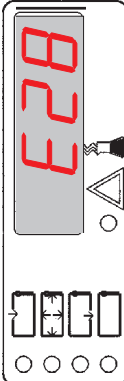
## ERROR CODE TROUBLESHOOTING CHART (continued)

| Error Message                                                                         | Explanation                                                                                            | Operator Action                                                                                                                                                                                                                                                    | Where In Cycle                     | Corrective Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <p>"Too long to charge."</p> <p>Heating problem.</p>                                                   | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• Check door gasket for damage or dirt buildup.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul> | Condition Phase.                   | <ol style="list-style-type: none"> <li>1. Check door gasket for dirt buildup or damage: clean or replace as needed.</li> <li>2. Assure air vent closes properly during condition phase; if it does not, replace air vent.</li> <li>3. Check heating element resistance: should be 9-11 ohms.</li> <li>4. Check voltage to heating element during cycle. If not present:               <ol style="list-style-type: none"> <li>a) Check for signal from control.</li> <li>b) Check for proper solid state relay operation.</li> </ol> </li> </ol> |
|    | <p>"Too long to condition."</p> <p>Unit fails to reach sterilization temperature in allotted time.</p> | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• Check door gasket for damage or dirt buildup.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul> | Condition Phase.                   | Same as "E14."                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|  | <p>"Door unlocked in cycle."</p> <p>Door unlocked during condition phase.</p>                          | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, close and lock door, then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul>                                     | Condition Phase (includes "fill"). | <ol style="list-style-type: none"> <li>1. Check door status; close or open as appropriate.</li> <li>2. Inspect door switch for proper operation: adjust or replace as needed.</li> </ol>                                                                                                                                                                                                                                                                                                                                                        |

## ERROR CODE TROUBLESHOOTING CHART (continued)

| Error Message                                                                         | Explanation                           | Operator Action                                                                                                                                                                                           | Where In Cycle   | Corrective Action |
|---------------------------------------------------------------------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------|
|    | "Shorted sensor failure."             | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul> | Sterilize Phase. | Same as "E01."    |
|    | Shorted temperature sensor.           |                                                                                                                                                                                                           |                  |                   |
|    | "Broken sensor failure."              | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul> | Sterilize Phase. | Same as "E01."    |
|    | Open temperature sensor.              |                                                                                                                                                                                                           |                  |                   |
|  | "Door unlocked in cycle."             | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul> | Sterilize Phase. | Same as "E16."    |
|  | Door unlocked during sterilize phase. |                                                                                                                                                                                                           |                  |                   |

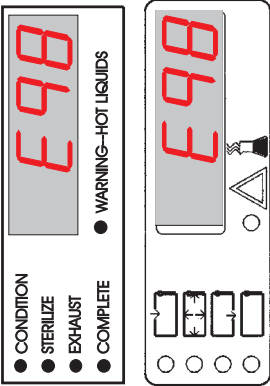
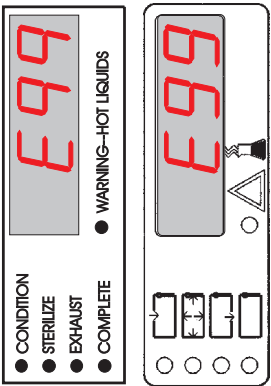
## ERROR CODE TROUBLESHOOTING CHART (continued)

| Error Message                                                                         | Explanation                                                                                                                                                      | Operator Action                                                                                                                                                                                                                                         | Where In Cycle   | Corrective Action                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <p>"Too long below set temp."</p> <p>Failed to maintain temperature set point.</p>                                                                               | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• Check door gasket for damage/dirt.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul> | Sterilize Phase. | Same as "E14."                                                                                                                                                                                                                                                                            |
|    |                                                                                                                                                                  |                                                                                                                                                                                                                                                         |                  |                                                                                                                                                                                                                                                                                           |
|    | <p>Temperature has dropped below set point (blinking sterilizer indicator light). The time resets and cycle will resume when preset temperature is achieved.</p> | <ul style="list-style-type: none"> <li>• Monitor cycle.</li> </ul>                                                                                                                                                                                      | Sterilize Phase. | <p>After cycle completion:</p> <ol style="list-style-type: none"> <li>1. Inspect door gasket for dirt buildup or damage; clean or replace as needed.</li> <li>2. Inspect plumbing for leaks; repair or replace as needed.</li> </ol>                                                      |
|    |                                                                                                                                                                  |                                                                                                                                                                                                                                                         |                  |                                                                                                                                                                                                                                                                                           |
|   | <p>"Exceeded overtemp limit."</p> <p>Over temperature (cycle will abort).</p>                                                                                    | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> <li>• If error code is displayed again, contact dealer service department.</li> </ul>                                               | Sterilize Phase. | <p>Test heating circuit as outlined in "E14," step #3.</p> <ol style="list-style-type: none"> <li>1. Verify that the control signals Solid State Relay to OFF when unit reaches set temperature + 3 degrees. If not, replace the control board or Solid State Relay as needed.</li> </ol> |
|  |                                                                                                                                                                  |                                                                                                                                                                                                                                                         |                  |                                                                                                                                                                                                                                                                                           |

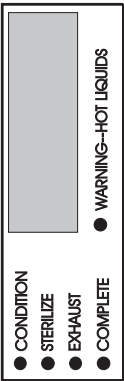
## ERROR CODE TROUBLESHOOTING CHART (continued)

| Error Message                                                                         | Explanation                                                                                    | Operator Action                                                                                                                           | Where In Cycle                                             | Corrective Action                                                                          |
|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|--------------------------------------------------------------------------------------------|
|    | <p>Door unlocked at cycle start.</p> <p>Door locked during exhaust or dry phase.</p>           | <ul style="list-style-type: none"> <li>Close and lock door.</li> <li>Unlock and open door 1/4 inch.</li> </ul>                            | Prior to cycle starting, or at end of Exhaust Phase.       | Same as "E16."                                                                             |
|    | <p>"Power failure in cycle. Check for dry (cool) load."</p> <p>Power failure during cycle.</p> | <ul style="list-style-type: none"> <li>Check for DRY (Gravity) or COOL (Liquid) load. If load still wet, let load DRY or COOL.</li> </ul> | Exhaust Phase (Drying).                                    | 1. Check for DRY (Gravity) or COOL (Liquid) load. If load still wet, let load DRY or COOL. |
|  | <p>"Power failure in cycle. Must reprocess the load."</p> <p>Power failure during cycle.</p>   | <ul style="list-style-type: none"> <li>Load must be reprocessed.</li> </ul>                                                               | Condition Phase (after temperature reaching 212°F [99°C]). | 1. Load must be reprocessed.                                                               |

## ERROR CODE TROUBLESHOOTING CHART (continued)

| Error Message                                                                        | Explanation                                                        | Operator Action                                                                                                                                                   | Where In Cycle                                                | Corrective Action                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | "Power failure in cycle. Okay to restart."                         | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> </ul>                                         | Condition Phase (prior to temperature reaching 212°F [99°C]). | <ol style="list-style-type: none"> <li>1. Wait for tone to sound.</li> <li>2. Press RESET touch pad, then retry.</li> </ol>                                                                                                                                                                                  |
|                                                                                      | Power failure during cycle.                                        | <ul style="list-style-type: none"> <li>• If error code is displayed again, contact dealer service department.</li> </ul>                                          |                                                               |                                                                                                                                                                                                                                                                                                              |
|   | "Too hot too fast."                                                | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> </ul>                                         | Any time control is ON.                                       | <p>If in cycle:</p> <ol style="list-style-type: none"> <li>1. Confirm water level in chamber and level probe is functioning.</li> </ol> <p>If not in cycle:</p> <ol style="list-style-type: none"> <li>1. Test heating circuit as outlined in "E14."</li> <li>2. Confirm air vent is functioning.</li> </ol> |
|                                                                                      | Abnormal rapid rise in temperature (greater than 10°F in seconds). | <ul style="list-style-type: none"> <li>• If error code is displayed again, contact dealer service department.</li> <li>• Check for water in reservoir.</li> </ul> |                                                               |                                                                                                                                                                                                                                                                                                              |
|  | "Operator reset."                                                  | <ul style="list-style-type: none"> <li>• Wait for tone to sound.</li> <li>• Press RESET touch pad, then retry.</li> </ul>                                         | Any time control is ON.                                       | <ol style="list-style-type: none"> <li>1. Wait for tone to sound.</li> <li>2. Press RESET touch pad to clear.</li> </ol>                                                                                                                                                                                     |
|                                                                                      | RESET touch pad was pressed during a cycle.                        |                                                                                                                                                                   |                                                               |                                                                                                                                                                                                                                                                                                              |

## ERROR CODE TROUBLESHOOTING CHART (continued)

| Error Message                                                                       | Explanation                                 | Operator Action                                                                                                                                                                                                                                             | Where In Cycle          | Corrective Action                                                                                                             |
|-------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------|
|  | Chamber temperature exceeded 395°F (201°C). | <ul style="list-style-type: none"> <li>• Press main reset switch on rear of unit.</li> <li>• Allow unit to cool.</li> <li>• Reprocess the load.</li> <li>• Retry cycle.</li> <li>• If display is blank again, contact dealer service department.</li> </ul> | Any time control is ON. | <ol style="list-style-type: none"> <li>1. Test overtemperature control for proper operation; replace if necessary.</li> </ol> |

## Section 6: Field Test Procedure

---



**WARNING – PERSONAL INJURY HAZARD:** Repairs and adjustments to this equipment must be made only by fully qualified service personnel. Nonroutine maintenance performed by inexperienced, unqualified personnel or installation of unauthorized parts could cause personal injury, invalidate the warranty, or result in costly damage.

### 6.0 GENERAL

The following Section describes Field Test Procedures that assist in troubleshooting problems with the sterilizer or check components to verify proper operation. After performing repairs on the unit, a test cycle should be run to verify proper operation.

#### 6.1 GENERAL CHECKS

- a) Verify unit is installed on a flat, level surface.
- b) Visually inspect unit for general appearance, check for loose screws.
- c) Verify proper positioning of the water filter inside the chamber.

#### 6.2 SERVICE DIAGNOSTIC TESTS

These procedures are used to check the following:

- a) Touch Pad LEDs
- b) Door Switch
- c) Water Level Probe
- d) Heater, Relay, and Valve Functions

Refer to Section 4 for instructions.

#### 6.3 OVER TEMPERATURE TEST

This test is used to verify proper operation of the over temperature switch.

- 1) Drain reservoir and piping of all water. Close door and push “ON/STANDBY” button.

- 2) Simulate the presence of water by touching the tip of the water level sensor and the chamber wall at the same time. An error message “E03” will appear on the display.
- 3) Initiate any cycle and immediately remove finger from the water level sensor.
- 4) Verify that unit shuts down (display blanks out) prior to reaching 300°F (149°C).

#### 6.4 TEMPERATURE CALIBRATION

Refer to Section 7.3 for instructions.

#### 6.5 CYCLE TESTS

Prior to tests, follow these steps:

- 1) Install test equipment as described in Section 7.3 “Thermistor / PC Board Calibration.”
- 2) Fill reservoir with deionized or distilled water.
- 3) Plug unit into a 120 VAC or 240 VAC (whichever is appropriate) 15 Amp receptacle. Verify that at least 102 VAC and no more than 132 VAC exists during operation.  
  
For 240 VAC units, verify voltage is between 204 VAC and 252 VAC.
- 4) Press RESET rocker switch on back panel. Verify that the display alternates between time (2 sec) and OFF (1 sec).
- 5) Press ON/STANDBY touch pad to ON. ON/STANDBY LED should illuminate and display should show time of day.

##### 6.5.1 Ten Sixteen (1016) and Eagle Ten

- 1) Close and lock door.
- 2) Press WRAPPED touch pad. Cycle should start and the following should occur:
  - a) CONDITION indicator light illuminates.
  - b) FILL appears on display.
  - c) V1 solenoid energizes. (V2 will already be energized.) Check for water leaks.

- d) Within 1 minute 45 seconds, the water fill should be complete; the display will indicate chamber temperature. V1 and V2 will de-energize.
- e) Heater turns ON and chamber temperature will start rising. Upon reaching 212°F/100°C, the gauge will display chamber pressure.
- 3) Visually check all gasket seal areas and piping connections for leaks. A mirror or highly polished piece of metal is needed.
- 4) When the temperature reaches 273°F\* (132°C), STERILIZE indicator light illuminates. CONDITION indicator light turns off. Display will start counting down from 10 minutes and display temperature and time alternately. Check all piping and gasket areas for leaks.

*NOTE: Elapsed time will be approximately 20 minutes for a cold start.*

- 5) Check pressure gauge on the sterilizer and verify that it reads within  $\pm 1.5$  psig of the chamber test gauge.
- 6) After 5 minutes, verify that the chamber temperature is 272°F  $\pm$  2°F (133°C  $\pm$  1°C)\*\* corresponding with the digital thermometer. If not, refer to Thermistor/PC Board Calibration Procedure in Section 7.3.
- 7) After 10 minutes, EXHAUST indicator illuminates and STERILIZE indicator shuts off. Verify that the time for sterilize phase is 10 minutes.
- 8) Sterilizer will exhaust and at the end of the exhaust, buzzer will sound, and display indicates "door."
- 9) Unlock and open chamber door ¼" (6 mm).
- 10) Dry phase begins. Verify that the display progressively counts up dry time.
- 11) Wait 5 to 9 minutes. Press ON/STANDBY touchpad. Verify the display shows "done," the buzzer sounds, and the heater shuts off. Press RESET touch pad. Verify sterilizer displays time of day.
- 12) Remove test equipment and replace cover.

\* 277°F for 240V International units

\*\* 276°F  $\pm$  2°F (135.5°C  $\pm$  1°C) for 240V International units

### 6.5.2 Ten Sixteen Plus (1016+) and Eagle Ten +

- 1) Close and lock door.
- 2) Set STER TIME SET to 10 minutes, STER TEMP SET to 270°F (132°C)\*, DRY TIME SET to 10 minutes. Initiate a cycle by pressing GRAVITY button twice.
- 3) Cycle should start. (Remainder of cycle will be the same as Steps 2a through 12 of Section 6.5.1.)

\* 274°F (136°C) for 240V International units

## 6.6 FINAL TEST

- 1) Ensure door swings easily without rubbing or binding.
- 2) Verify door gasket is properly installed.
- 3) Check unit for any water leaks at shell and reservoir.
- 4) Ensure all electrical connections are tight.
- 5) Remove all test equipment.
- 6) Police work area to ensure removal of all materials used during test.

## Section 7: Component Repair, Replacement, and Adjustment

**WARNING - PERSONAL INJURY HAZARD:** Repairs and adjustments to this equipment must be made by fully qualified personnel. Nonroutine maintenance performed by inexperienced, unqualified personnel or installation of unauthorized parts could cause personal injury, invalidate the warranty, or result in costly damage. Contact STERIS Engineering Service regarding service options.

**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** Do not remove or replace printed circuit boards unless facility power is off and electrostatic precautions are taken (see Section 7.1).

### 7.0 GENERAL

This section includes instructions for the disassembly, repair, and replacement of selected sterilizer components. Refer to Sections 8 and 9 for the location of the various components.

**WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading, performing maintenance, or cleaning.

### 7.1 RECOMMENDED ELECTROSTATIC DAMAGE (ESD) PRECAUTIONS

*NOTE: The following precautions should be taken whenever Printed Circuit Boards are being handled or replaced:*

1. Always use an ESD-safe container when transporting boards from one location to another.
2. No boards should be removed from their containers except at an approved static station or where personnel and machine are properly grounded.
3. At minimum, use a wrist strap grounded to the sterilizer when removing and / or replacing board.

*NOTE: Failure to follow the above precautions may result in electrostatic damage to the Printed Circuit Board.*

### 7.2 PC BOARD REPLACEMENT

**WARNING - PERSONAL INJURY HAZARD:** Disconnect power to sterilizer and allow sterilizer to cool to room temperature before performing any maintenance procedure.

1. Verify unit is cool, depressurized, and disconnected from wall outlet.
2. Remove the six screws securing outer cover assembly (Figure 7-1).
3. Remove four screws securing control assembly to the front of the unit (Figure 7-2).

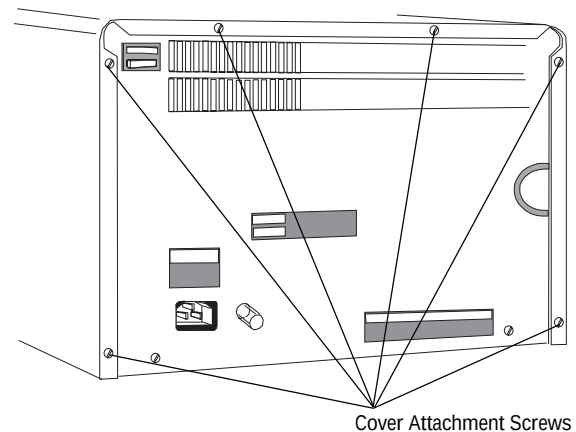


Figure 7-1  
Outer Cover Attachment

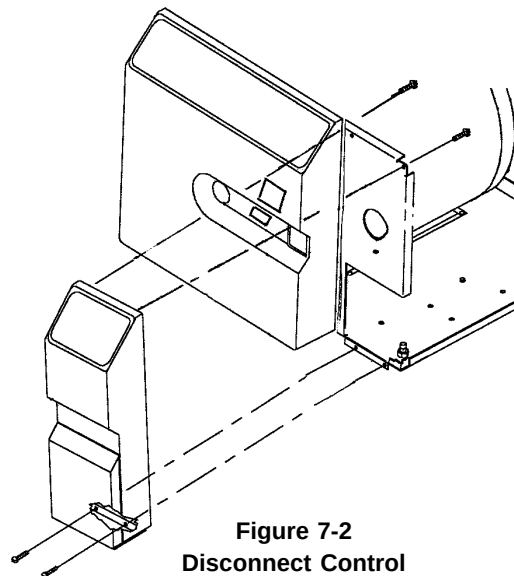


Figure 7-2  
Disconnect Control

4. Disconnect all cable connections from the PC Board (note orientation of the cables).

**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** Do not remove or replace printed circuit board unless facility power is off and electrostatic precautions are taken (see Section 7.1).

5. Remove the five mounting screws and carefully remove PC Board from control housing.

6. Install the new PC Board.

**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** To avoid thermistor damage, when installing new thermistor, ensure that it does not touch outer cover.

7. Calibrate the thermistor as outlined in Section 7.3.

8. Reassemble in reverse order.

### 7.3 THERMISTOR/PC BOARD CALIBRATION

1. Obtain test equipment and note Temperature/Resistance Data (see Figure 7-3):

- Calibrated digital potentiometer (Doric 400 or equivalent)
- Cross, 1/2 (P-150822-333)
- Nipple, 1/2 (P-29162-091)
- Tape

**WARNING - PERSONAL INJURY HAZARD:** Disconnect power to sterilizer and allow sterilizer to cool to room temperature before performing any maintenance procedure.

2. Remove outer cover from unit (Figure 7-1).
3. Remove safety valve. Install nipple and cross. Attach safety valve to cross.
4. Insert thermocouple through cross on side of unit (see Section 6.3). Attach potentiometer thermocouple to thermistor using a small piece of tape.
5. Select WRAPPED 270°F/132°C, 10-minute cycle for Amsco Eagle Ten and STERIS Ten Sixteen (1016) units. On plus series units, set sterilize temperature to 270°F and sterilize time to 10 minutes.

6. After 5 minutes has elapsed in the sterilize phase, verify that the chamber temperature is 272°F  $\pm$  2°F (133  $\pm$  1°C) corresponding to the digital potentiometer. If temperatures do not correspond, adjust "R2" on the PC Board until temperature on the display panel matches potentiometer temperature.

7. Press RESET touch pad to abort cycle.

8. Remove thermocouple from thermistor. Remove test cross and nipple from side of unit. Replace safety valve.

9. Reinstall cover.

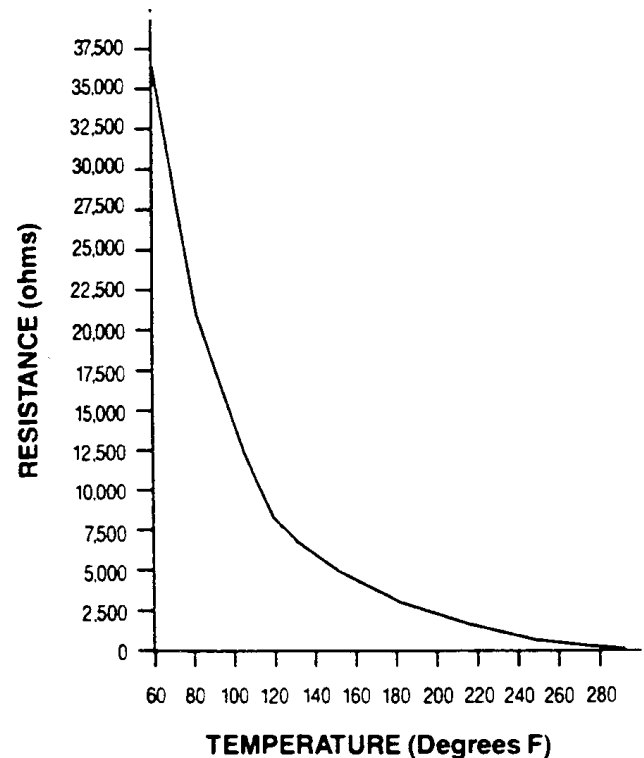


Figure 7-3  
Temperature vs. Resistance

## 7.4 HEATER REPLACEMENT (FIGURE 7-4)



**WARNING - PERSONAL INJURY HAZARD:** Disconnect power to sterilizer and allow sterilizer to cool to room temperature before performing any maintenance procedure.

1. Unplug unit from wall outlet. Verify unit is cool. Remove outer cover from unit (Figure 7-1).
2. Disconnect wires from faulty heater.
3. Loosen and remove heater nuts and washers.
4. Remove faulty heater from unit being careful NOT to touch overtemp probe. If needed, probe nut can be loosened and probe rotated out of the way.
5. Install new heater and return overtemp probe to proper position if moved.

*NOTE: Ensure overtemperature RTD is mounted 1/4" (6 mm) above inner shell and is positioned over heating element.*

6. Reassemble in reverse order. Apply heat shrink tubing to heater tabs.

## 7.5 CHAMBER PRESSURE GAUGE

1. With the door open, remove the four screws securing door cover to the door. Note the orientation of the spacer washers between door cover and door.

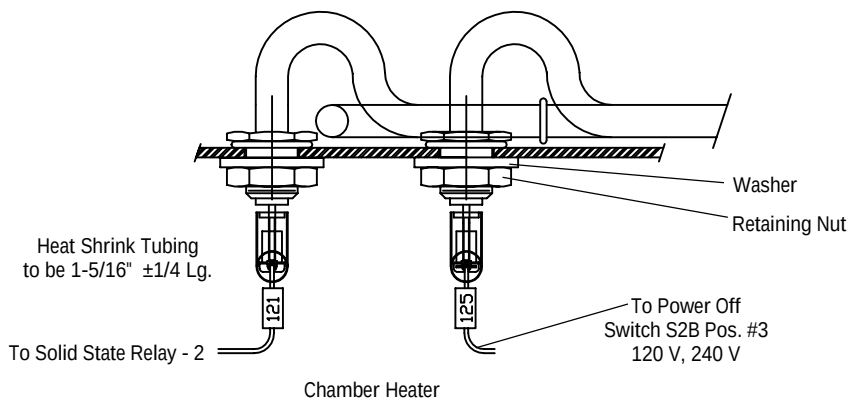


**Figure 7-4**  
**Heater Replacement**

2. For units built prior to 1993: Remove the old pressure gauge (P-93910-142) and connector (P-129360-899). For units built after 1993: Remove the old pressure gauge (P-400028-096).
3. Place Teflon® (DuPont) tape on the threads of the new pressure gauge (P-400028-096).
4. Install the new gauge only for units built after 1993, assuring that the display is level. For units built prior to 1993, install gauge and connector (P-400028-348).
5. Reassemble in reverse order. Note that spacer washers are properly oriented.

## 7.6 AIR VENT REPLACEMENT (FIGURE 7-5)

1. Disconnect the power cord and allow unit to cool.
2. Remove outer enclosure (see Fig. 7-1).
3. Remove compression fittings on the air vent.
4. Remove the old air vent.
5. Install the new air vent. Be sure to orient the air vent with arrow pointing up.
6. Reassemble in reverse order.

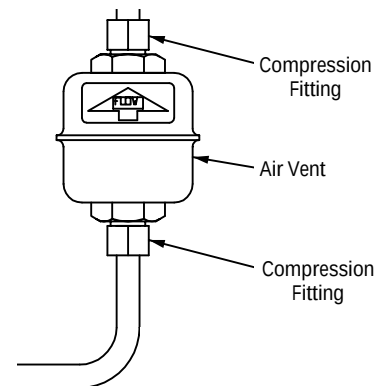


**Figure 7-5**  
**Air Vent**

## 7.7 OVERTEMPERATURE CONTROLLER REPLACEMENT (FIGURE 7-6)

1. Disconnect power cord and allow unit to cool.
2. Remove outer enclosure (see Fig. 7-1).
3. Note the connection points of the wires on the overtemperature control module and then remove each.
4. Remove the lock nut securing controller to the mounting bracket and remove old controller.
5. Install the new overtemperature controller.
6. Reassemble in reverse order.
7. Verify overtemperature controller as outlined in Section 7.10.

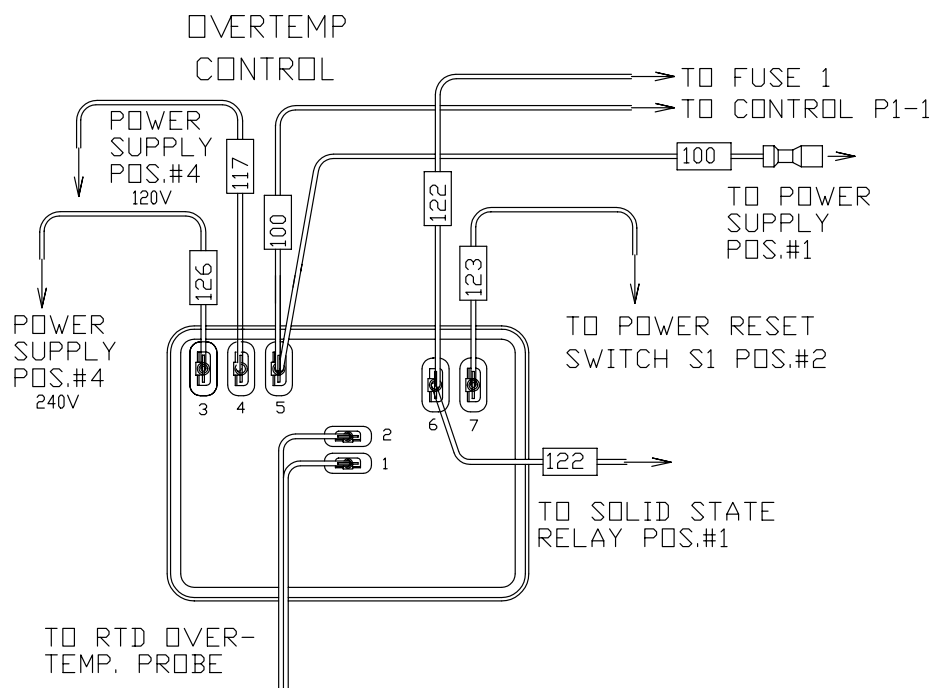


**Figure 7-6**  
**Overtemperature Controller Replacement**

## 7.8 POWER SUPPLY REPLACEMENT (FIGURE 7-7)

1. Disconnect the power cord and allow unit to cool.
2. Remove outer enclosure (see Fig. 7-1).
3. Unplug P3 and P10 and disconnect individual wires connected to the power supply. Note the proper connection points prior to rewiring.
4. Remove screws securing power supply to the lower enclosure.
5. Install new power supply assembly.
6. Reassemble in reverse order.

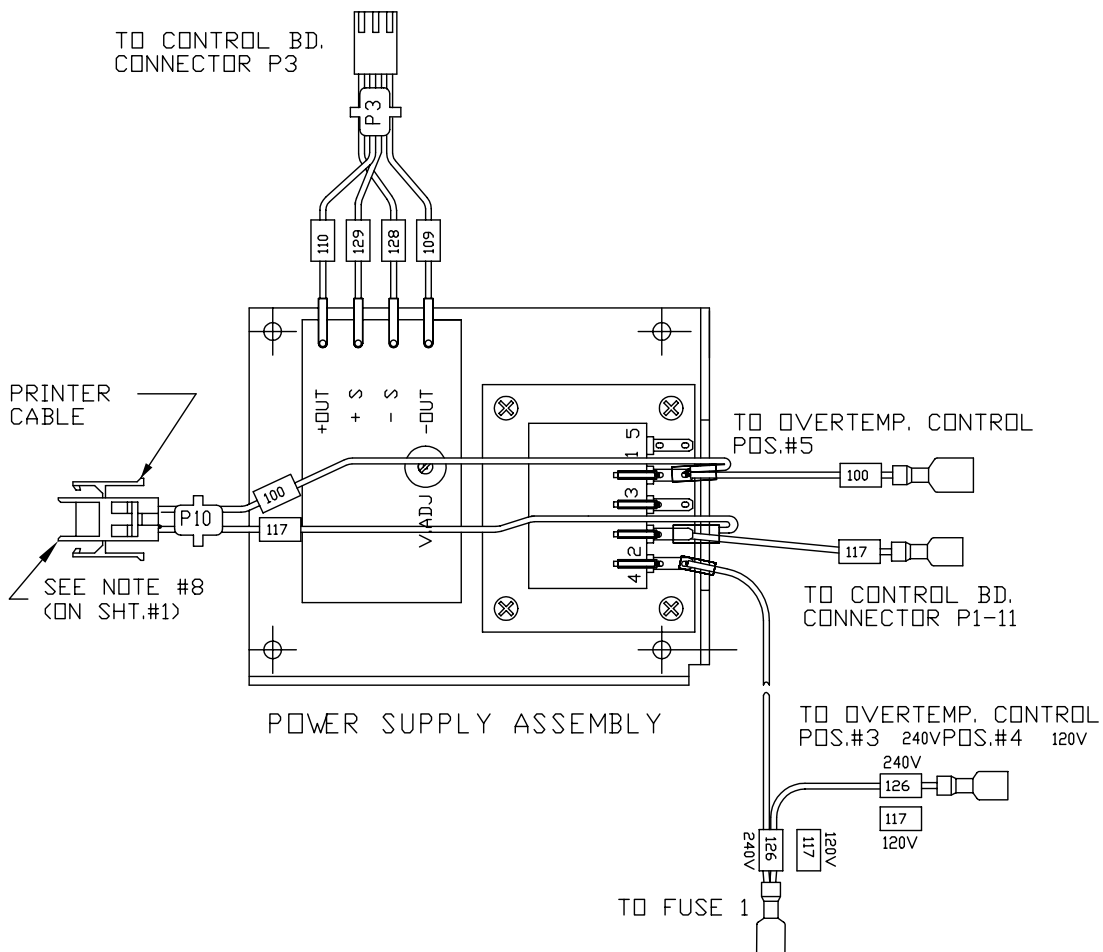


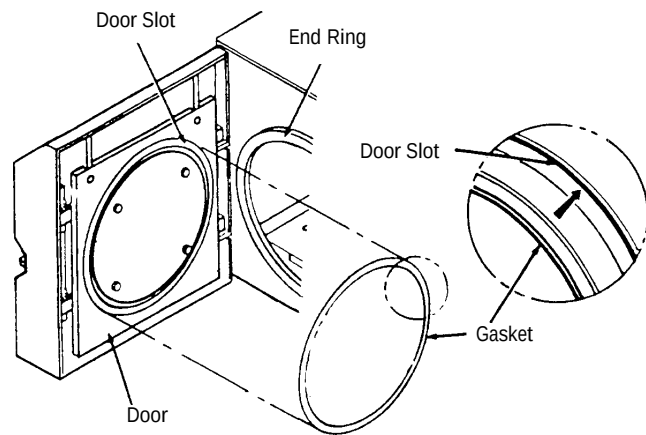
**Figure 7-7**  
**Power Supply**

## 7.9 EXHAUST/FILL VALVE REBUILDING KIT (764320-920 REQUIRED)

1. Disconnect the power cord and allow unit to cool.
2. Remove outer enclosure (see Fig. 7-1).
3. Remove fast-on terminals attached to the valve coil.
4. Remove the coil.

*NOTE: It may be necessary to temporarily disconnect other components to gain access to the valves.*

5. Rebuild valve as outlined in the Replacement Kit (764320-920) Instructions.
6. Reassemble in reverse order.



## 7.10 VERIFYING OVERTEMPERATURE CONTROLLER

*NOTE: Attach potentiometer thermocouple to overtemperature RTD.*

1. Remove thermistor from chamber.
2. Short level sensor to sterilizer chassis using a jumper wire.
3. Initiate any cycle.
4. Observe and note the temperature at which unit shuts down (blank display).
5. Verify that RTD shuts power OFF (blank display) and record shut down temperature.
6. Overtemperature controller must shut unit down prior to 450°F (232°C).

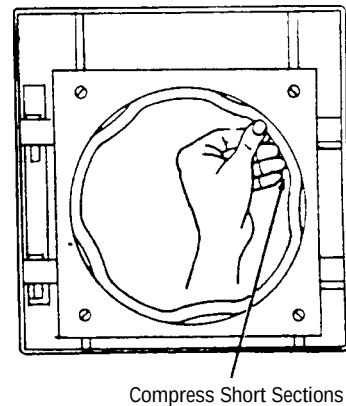


**Figure 7-8**  
**Door Gasket Replacement**

## 7.11 DOOR PROCEDURES (SEE FIGURES 7-8 OR 8-9)

### 7.11.1 Replacing Door Gasket

1. Remove and discard the old gasket.
2. Clean slot and end ring with a cloth dampened with deionized or distilled water only.
3. Wipe the new gasket (P-426637-261) clean with a damp cloth. Then slide the outer edge of gasket into the door slot a short section at a time without stretching it in the process. Should the gasket appear too long, DO NOT CUT IT. Start the process again, compressing short sections into slot, until the entire length is inserted.
4. Check that the gasket lip is fully inserted into door slot around the entire perimeter.

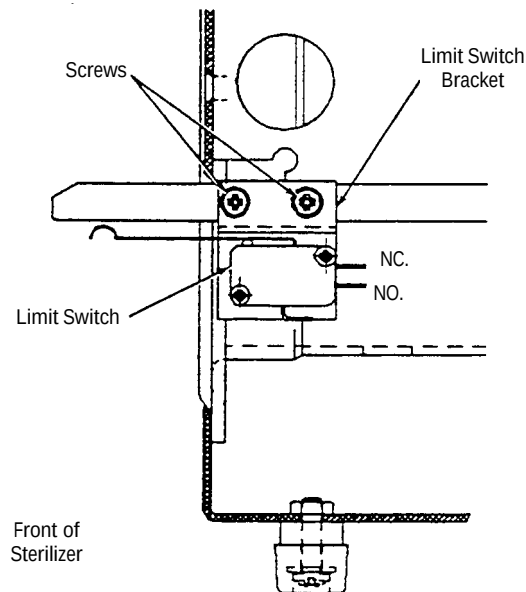


**Figure 7-9**  
**Door Switch Adjustment**

### 7.11.2 Door Switch Adjustment

1. Remove outer cover assembly.
2. Close and lock door.
3. Loosen screws holding the limit switch bracket and adjust limit switch in a vertical direction to the activated position (clicks while moving switch up) and tighten screws (Fig. 7-9).
4. Unlock door and check to see that the switch is deactivated with a click.
5. Lock door again and verify that the switch activates with a click.
6. Reinstall outer cover.

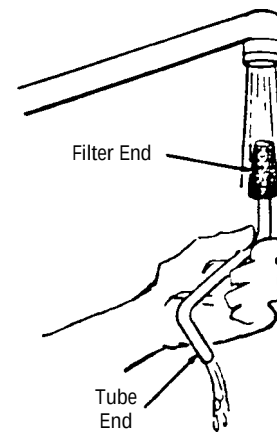


Figure 7-10  
Reverse Flushing Filter

### 7.12 CLEANING/REPLACING CHAMBER FILTER



**WARNING - BURN HAZARD:** To prevent possible personal injury, allow sterilizer to cool for 10 minutes before unloading or cleaning.



**WARNING - PERSONAL INJURY HAZARD:** Disconnect power to sterilizer and allow sterilizer to cool to room temperature before performing any maintenance procedure.

1. Remove bottom shelf from chamber to gain access to the filter.
2. Pull filter out of fill port on the back wall of the chamber.
3. If filter appears clogged or coated with debris, clean by reverse flushing with water (Figure 7-10). If filter cannot be effectively cleaned, (i.e., it remains clogged) replace the filter (P-129357-645).
4. After changing/replacing filter, insert tube end of filter into the fill port (located on the bottom right portion of the chamber rear wall). After inserting, turn filter so the tip rests on the bottom of the chamber near the center line (see Figures 7-11 and 7-12).
5. Place bottom shelf back into chamber and make sure the front edge of the shelf is inserted into tab for shelf support (Figure 7-12). Be careful not to dislodge filter when reinserting the bottom shelf.

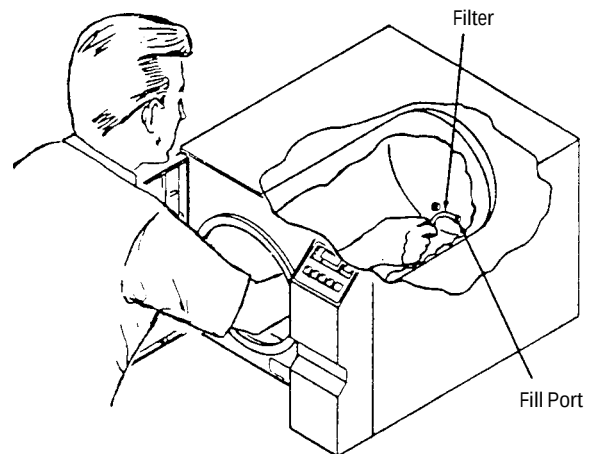


Figure 7-11  
Reinserting Filter

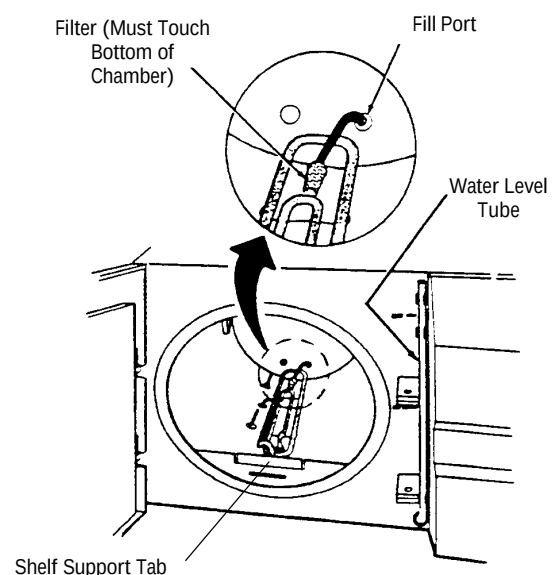


Figure 7-12  
Proper Filter Placement

## 7.13 LIQUID/MEDIA LOSS



**CAUTION - POSSIBLE EQUIPMENT DAMAGE:** If media is processed, bottles and tubes should contain no more than 1/2 the total volume of the container. When processing water bottles and test tubes, the bottles and tubes should contain no more than 3/4 the total volume of the container. Chamber, filter, and water level probe should be cleaned daily when processing media.

Certain biological media may boil more vigorously during slow exhaust because of vented closure being used and/or ratio of liquid to volume of media container. If excessive liquid/media loss or if media spills are discovered in bottom of chamber, proceed as follows:

1. Verify that media containers are not overly full. If uncertain about volume of media recommended per container, contact a STERIS Customer Account Representative.
2. Use appropriate vented closure for media being processed.
3. Check vent valve for leaks.
4. Certain liquid/media processes may require extended exhaust rates beyond standard EXHAUST phase. For additional information, contact STERIS Customer Account Representative.

## 7.14 RECOMMENDED SPARE PARTS

To order replacement parts and/or supply products, proceed as follows:

1. Include the description and the part/order number as listed in Table 7-1.
2. Include the model and serial number of your sterilizer on your order.
3. Send your order directly to the sales and service center serving your area.

Contact your STERIS representative for recommendations on cleaning products, biological indicators, or parts that are not listed below.

*NOTE: Use only STERIS authorized parts on this equipment. Use of unauthorized parts will void the warranty.*

## 7.15 WASTE PRODUCTS DISPOSAL

The following are materials associated with the sterilizer. When disposing of waste materials, be sure to do so in compliance with federal, state, and local regulations.

- Printer paper - recyclable
- Entire sterilizer (end-of-life) - Contact STERIS for disposal or recycling recommendations.

**Table 7-1. Replacement Parts**

| Description          | Part Number  |
|----------------------|--------------|
| Door Gasket          | P-426637-261 |
| Printer Paper        | P-129359-008 |
| Chamber Filter       | P-129357-645 |
| Half-moon Gasket Kit | P-764327-812 |
| Sight Glass Tube     | P-400009-207 |
| Fuse (7 Amp)         | P-400009-457 |
| Fuse (1 / 2 Amp)     | P-020341-091 |
| Fuse (1 / 4 Amp)     | P-045888-091 |

## Section 8: Illustrated Parts Breakdown

### Amsco Eagle Ten and Eagle Ten +

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Amsco Eagle Ten and Ten + sterilizer assemblies and components are illustrated and identified on the following pages. Part number description and quantity required for each usage are given. Each indentation in the description represents the assembly level. The UNITS PER ASSEMBLY column is specific for the given assembly or subassembly.

2. Turn to the page indicated and locate the desired part on the illustration.
3. From the illustration, obtain the index number assigned to the part desired. Refer to the accompanying description for specific information regarding the part.

#### 8.0 HOW TO USE THE ILLUSTRATED PARTS BREAKDOWN

1. Determine the function and application of the part required. See Figure Index below and select the most appropriate title. Note the illustration page number.

| FIGURE | TITLE                                                       | PAGE |
|--------|-------------------------------------------------------------|------|
| 8-1    | Final Assembly                                              | 8-2  |
| 8-2    | Shell and Door Assembly                                     | 8-4  |
| 8-3    | Shell and Base Assembly                                     | 8-6  |
| 8-4    | Reservoir and Piping Assembly (before 7/1/91)               | 8-8  |
| 8-5    | Reservoir and Piping Assembly (after 7/1/91)                | 8-10 |
| 8-6    | Control Assembly                                            | 8-12 |
| 8-7    | Electrical Components (before 1/1/97)                       | 8-14 |
| 8-8    | Electrical Components with Sql. Power Switch (after 1/1/97) | 8-16 |
| 8-9    | Sensor Assembly                                             | 8-18 |
| 8-10   | Printer Assembly (optional)                                 | 8-20 |

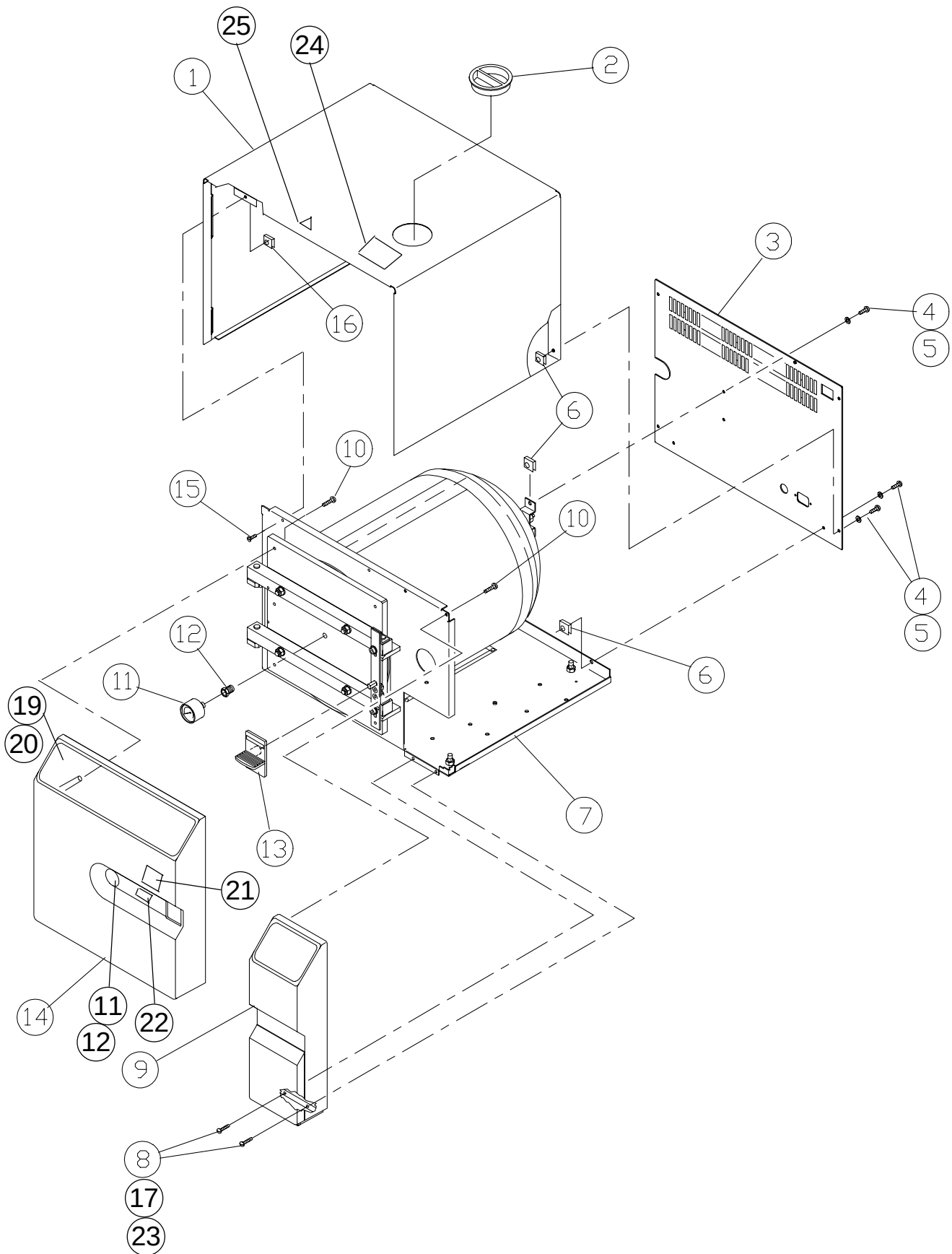


**Figure 8-1. Final Assembly**

| FIG. &<br>ITEM<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                                         | UNITS PER<br>ASSEMBLY |          |          |          |
|-----------------------|----------------|--------|-----|-------------|-----------------------------------------------------|-----------------------|----------|----------|----------|
|                       |                |        |     |             |                                                     |                       |          |          |          |
| <b>8-1</b>            |                |        |     |             | <b>FINAL ASSEMBLY</b>                               |                       |          |          |          |
|                       |                |        |     |             | <b>EAGLE TEN (Fixed) .....</b>                      | <b>X</b>              |          |          |          |
|                       |                |        |     |             | <b>EAGLE TEN (Fixed, W/Printer).....</b>            |                       | <b>X</b> |          |          |
|                       |                |        |     |             | <b>EAGLE TEN + (Programmable) .....</b>             |                       |          | <b>X</b> |          |
|                       |                |        |     |             | <b>EAGLE TEN + (Programmable, W/Printer).....</b>   |                       |          |          | <b>X</b> |
| 1                     | P              | 426637 | 263 |             | ENCLOSURE, Shell .....                              | 1                     | 1        | 1        | 1        |
| 2                     | P              | 418335 | 208 |             | CAP, Fill .....                                     | 1                     | 1        | 1        | 1        |
|                       | P              | 400009 | 159 |             | FASTENER, Nylon 5" .....                            | 1                     | 1        | 1        | 1        |
| 3                     |                |        |     |             | BACK ENCLOSURE ASSEMBLY (See Figure 8-1) .....      | 1                     | 1        | 1        | 1        |
| 4                     | P              | 93910  | 937 |             | SCREW, Sems, #10-24 x 1/2 .....                     | 10                    | 10       | 10       | 10       |
| 5                     | P              | 20844  | 061 |             | WASHER, Flat, #10 .....                             | 10                    | 10       | 10       | 10       |
| 6                     | P              | 413720 | 336 |             | NUT, Speed, #10-24 .....                            | 10                    | 10       | 10       | 10       |
| 7                     |                |        |     |             | SHELL, BASE, & DOOR ASSEMBLY (See Figure 8-2) ..... | 1                     | 1        | 1        | 1        |
| 8                     | P              | 31707  | 041 |             | SCREW, #10-24 x 1-1/8 .....                         | 2                     | 2        | 2        | 2        |
| 9                     | P              | 422637 | 269 |             | CONTROL ASSEMBLY, (Fixed) .....                     | 1                     |          |          |          |
|                       | P              | 422637 | 271 |             | CONTROL ASSEMBLY, (Fixed W/Printer) .....           |                       | 1        |          |          |
|                       | P              | 422637 | 270 |             | CONTROL ASSEMBLY, (Programmable).....               |                       |          | 1        |          |
|                       | P              | 422637 | 272 |             | CONTROL ASSEMBLY, (Programmable W/Printer) .....    |                       |          |          | 1        |
| 10                    | P              | 93910  | 939 |             | SCREW, Sems, #10-24 x 3/4 .....                     | 6                     | 6        | 6        | 6        |
| 11                    | P              | 93910  | 142 |             | GAUGE, Pressure (before 1993) .....                 | 1                     | 1        | 1        | 1        |
| •                     | P              | 400028 | 096 |             | GAUGE, Pressure (after 1993) .....                  | 1                     | 1        | 1        | 1        |
| 12                    | P              | 129360 | 899 |             | EXTENSION, Pressure Gauge (before 1993) .....       | 1                     | 1        | 1        | 1        |
| •                     | P              | 400009 | 348 |             | EXTENSION, Pressure Gauge (after 1993) .....        | 1                     | 1        | 1        | 1        |
| 13                    | P              | 418335 | 209 |             | LATCH, Door .....                                   | 1                     | 1        | 1        | 1        |
| 14                    | P              | 426637 | 264 |             | COVER, Door .....                                   | 1                     | 1        | 1        | 1        |
| 15                    | P              | 150473 | 132 |             | SCREW, Flat Head, #6-32 x 1 .....                   | 2                     | 2        | 2        | 2        |
| 16                    | P              | 129361 | 962 |             | NUT, Speed, #6-32 .....                             | 2                     | 2        | 2        | 2        |
| 17                    | P              | 129354 | 174 |             | LOCKWASHER, Star #10 .....                          | 2                     | 2        | 2        | 2        |
| 19                    | P              | 134473 | 280 |             | LABEL, Eagle Ten (Fixed Control) .....              | 1                     | 1        |          |          |
| 20                    | P              | 134473 | 310 |             | LABEL, Eagle Ten Plus (Variable Control) .....      |                       |          | 1        | 1        |
| 21                    | P              | 150829 | 250 |             | LABEL, Warning Door Lock.....                       | 1                     | 1        | 1        | 1        |
| 22                    | P              | 150829 | 251 |             | LABEL, Door Lock Indicator .....                    | 1                     | 1        | 1        | 1        |
| 23                    | P              | 17598  | 045 |             | SPEEDNUT, #10-24 .....                              | 4                     | 4        | 4        | 4        |
| 24                    | P              | 56401  | 810 |             | LABEL, Caution Cleaning .....                       | 1                     | 1        | 1        | 1        |
| 25                    | P              | 150824 | 912 |             | LABEL, Caution .....                                | 1                     | 1        | 1        | 1        |

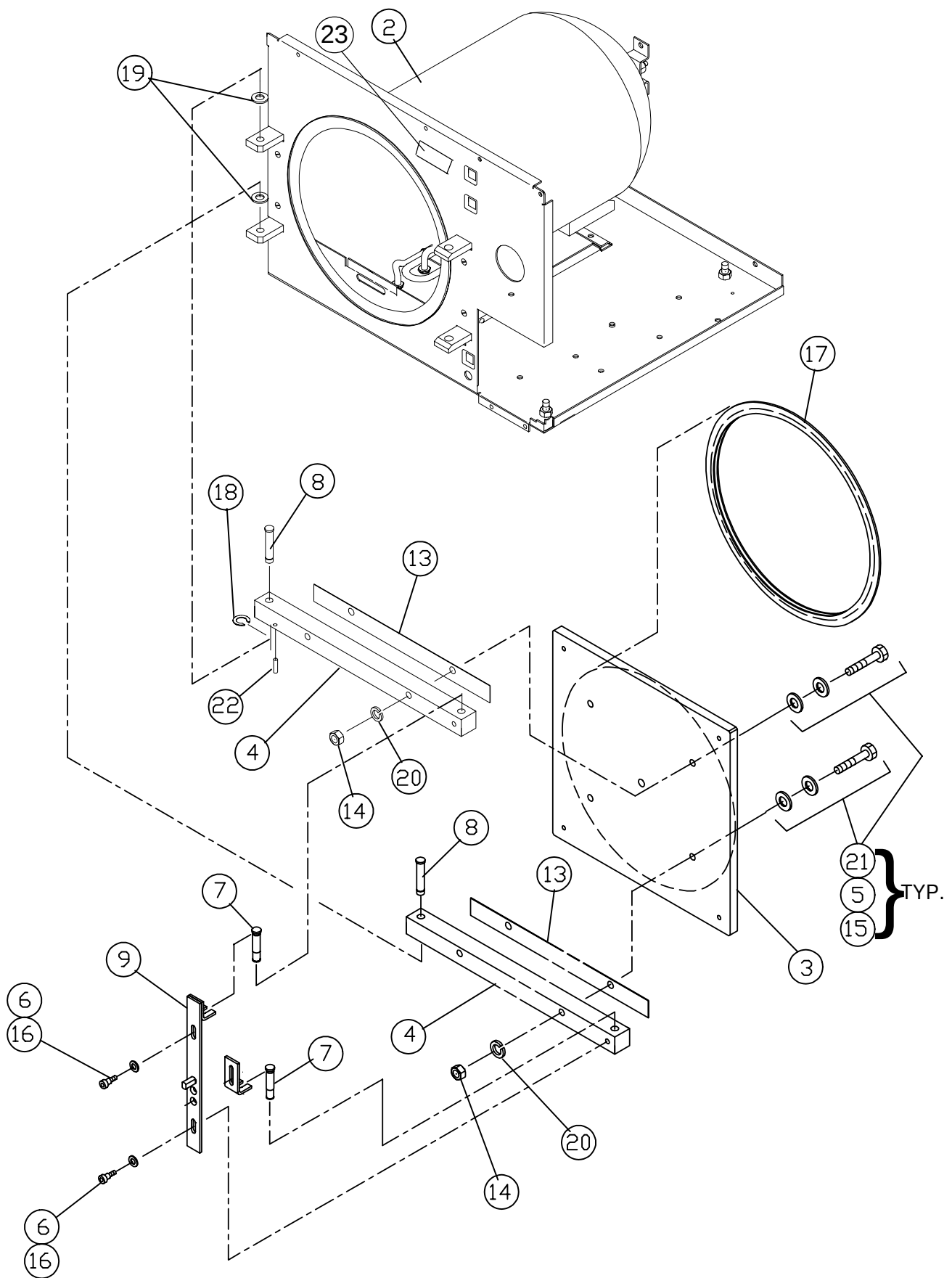


**Figure 8-2. Shell and Door Assembly**

| FIG. &<br>ITEM<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                                              | UNITS PER<br>ASSEMBLY |  |  |  |
|-----------------------|----------------|--------|-----|-------------|----------------------------------------------------------|-----------------------|--|--|--|
| 8-2                   |                |        |     |             | <b>SHELL AND DOOR ASSEMBLY .....</b>                     | <b>X</b>              |  |  |  |
| 2                     |                |        |     |             | SHELL AND BASE ASSEMBLY (see Fig. 6-3) .....             | 1                     |  |  |  |
| 3                     |                |        |     |             | DOOR, Sterilizer .....                                   | 1                     |  |  |  |
| 4                     | P              | 418335 | 205 |             | BAR, Hinge .....                                         | 2                     |  |  |  |
| 5                     | P              | 33281  | 061 |             | WASHER, Flat .328ID x .687OD x .031THK .....             | 4                     |  |  |  |
| 6                     | P              | 31599  | 041 |             | WASHER, Flat .260ID x .562OD x .040THK .....             | 2                     |  |  |  |
| 7                     | P              | 413720 | 325 |             | PIN, Lock .....                                          | 2                     |  |  |  |
| 8                     | P              | 413720 | 326 |             | PIN, Hinge .....                                         | 2                     |  |  |  |
| 9                     | P              | 413720 | 327 |             | SLIDE, Weldment .....                                    | 1                     |  |  |  |
| 13                    | P              | 93910  | 914 |             | GASKET .....                                             | 2                     |  |  |  |
| 14                    | P              | 3098   | 045 |             | NUT, Hex (5/16-18) .....                                 | 4                     |  |  |  |
| 15                    | P              | 129361 | 723 |             | BOLT (5/16-18 x 2") .....                                | 4                     |  |  |  |
| 16                    | P              | 129356 | 032 |             | SCREW, Cap (10-32 x 3/16) HEX SOC HD (before 1991) ..... | 2                     |  |  |  |
| •                     | P              | 400009 | 156 |             | SCREW, Blinding HD., 1/4-20 x 3/8 (after 1991) .....     | 1                     |  |  |  |
| 17                    | P              | 426637 | 261 |             | GASKET, Door .....                                       | 1                     |  |  |  |
| 18                    | P              | 42641  | 091 |             | RING, Retain .....                                       | 2                     |  |  |  |
| 19                    | P              | 10456  | 091 |             | WASHER, FLAT (.390ID x .687OD x .031THK) .....           | 2                     |  |  |  |
| 20                    | P              | 19691  | 061 |             | LOCKWASHER, 5/16 LT. S/S .....                           | 4                     |  |  |  |
| 21                    | P              | 129360 | 774 |             | WASHER, Sealing 5/16 .....                               | 4                     |  |  |  |
| 22                    | P              | 51084  | 091 |             | PIN, Dowel (3/16 x 3/4) .....                            | 1                     |  |  |  |
| 23                    | P              | 400009 | 086 |             | LABEL, Warning .....                                     | 1                     |  |  |  |

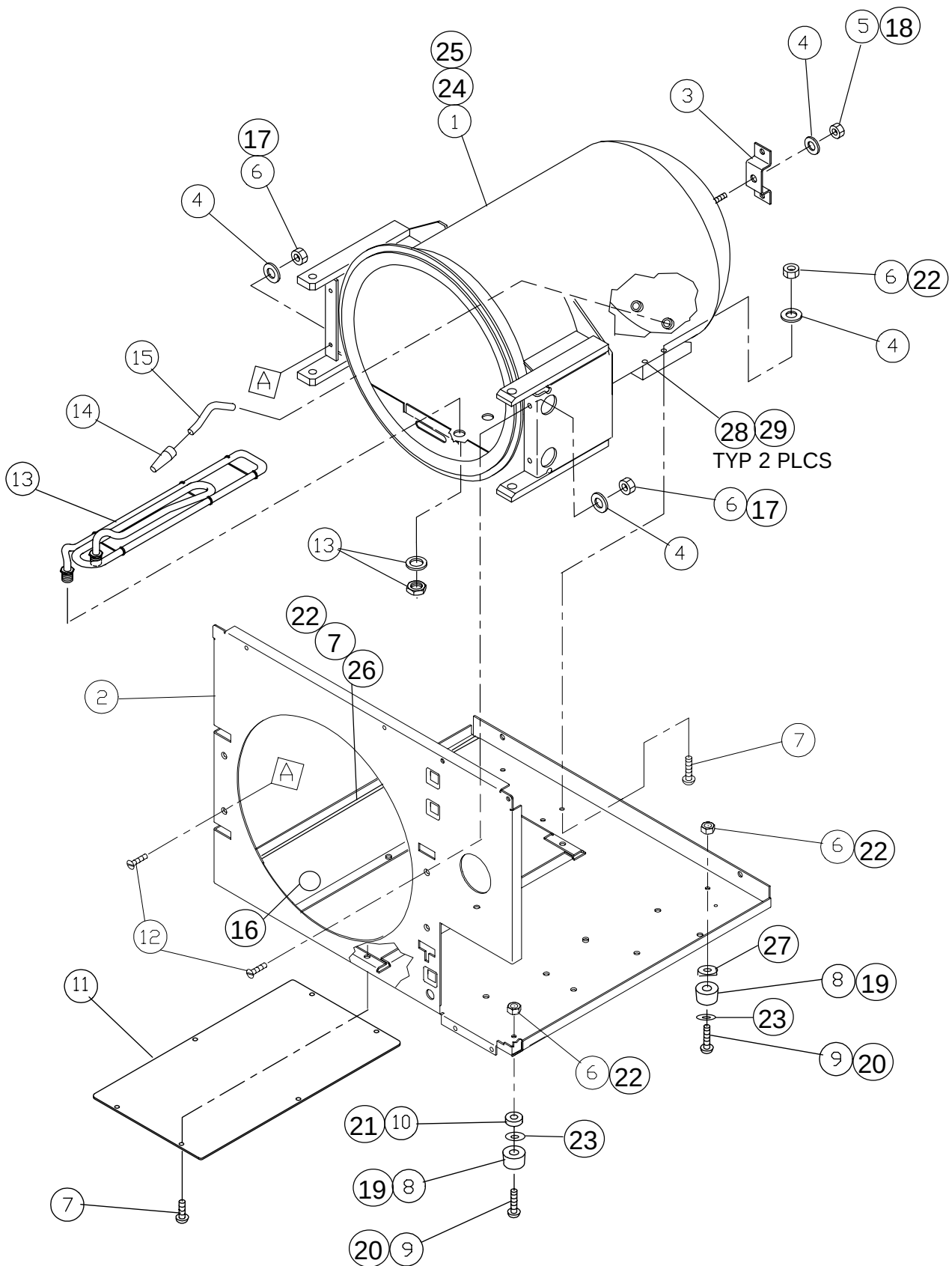


**Figure 8-3. Shell and Base Assembly**

| FIG. &<br>ITEM<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                                          | UNITS PER<br>ASSEMBLY |  |  |  |
|-----------------------|----------------|--------|-----|-------------|------------------------------------------------------|-----------------------|--|--|--|
| 8-3                   |                |        |     |             | <b>SHELL AND BASE ASSEMBLY .....</b>                 | <b>X</b>              |  |  |  |
| 1                     |                |        |     |             | SHELL, Weldment .....                                | 1                     |  |  |  |
| 2                     |                |        |     |             | ENCLOSURE, Bottom .....                              | 1                     |  |  |  |
| 3                     | P              | 413720 | 339 |             | MOUNT, Rear .....                                    | 1                     |  |  |  |
| 4                     | P              | 20844  | 061 |             | WASHER, Flat #10 (before 1991) .....                 | 7                     |  |  |  |
| 5                     | P              |        |     |             | NUT #10-32 Keps (before 1991) .....                  | 1                     |  |  |  |
| 6                     | P              | 42387  | 045 |             | NUT #10-24 (before 1991) .....                       | 10                    |  |  |  |
| 7                     | P              | 93910  | 937 |             | SCREW, Sems #10-24 x 1/2" lg .....                   | 8                     |  |  |  |
| 8                     | P              | 33168  | 091 |             | BUMPER (before 1991) .....                           | 4                     |  |  |  |
| 9                     | P              | 93910  | 939 |             | SCREW, Sems #10-24 x 3/4" lg (before 1991) .....     | 9                     |  |  |  |
| 10                    | P              | 29919  | 061 |             | SPACER (before 1991) .....                           | 2                     |  |  |  |
| 11                    | P              | 418335 | 210 |             | COVER, Lower Access (before 1990) .....              | 1                     |  |  |  |
| 12                    | P              | 430349 | 045 |             | SCREW, #10-24 Flat .....                             | 4                     |  |  |  |
| 13                    | P              | 136807 | 855 |             | HEATER ASSEMBLY, 120V .....                          | A/R                   |  |  |  |
| •                     | P              | 400077 | 468 |             | HEATER ASSEMBLY, 220V .....                          | A/R                   |  |  |  |
| 14                    | P              | 129357 | 645 |             | FILTER, Water .....                                  | 1                     |  |  |  |
| 15                    | P              | 93910  | 915 |             | TUBE, Filter .....                                   | 1                     |  |  |  |
| 16                    | P              | 56401  | 040 |             | PLUG-HOLE, 2" Dia Hole                               |                       |  |  |  |
| 17                    | P              | 93912  | 192 |             | NUT, Flange Lock #10-24 (after 1991) .....           | 4                     |  |  |  |
| 18                    | P              | 129360 | 016 |             | NUT, Flange Lock #10-32 (after 1991) .....           | 1                     |  |  |  |
| 19                    | P              | 400009 | 203 |             | BUMPER (after 1991) .....                            | 4                     |  |  |  |
| 20                    | P              | 31707  | 041 |             | SCREW, #10-24 x 1-1/8" Lg (after 1991) .....         | 4                     |  |  |  |
| 21                    | P              | 400009 | 184 |             | SPACER, .500 Thk Nylon (front) (after 1991) .....    | 2                     |  |  |  |
| 22                    | P              | 129360 | 541 |             | NUTKEPS, #10-24 (after 1991) .....                   | 6                     |  |  |  |
| 23                    | P              | 129354 | 174 |             | LOCKWASHER, Star #10 (after 1991) .....              | 4                     |  |  |  |
| 24                    | P              | 422922 | 155 |             | INSULATION, Shell .....                              | 1                     |  |  |  |
| 25                    | P              | 413720 | 526 |             | TIE, Cable .....                                     | 1                     |  |  |  |
| 26                    | P              | 134470 | 390 |             | BRACKET, Bottom Enclosure Support (after 1991) ..... | 1                     |  |  |  |
| 27                    | P              | 400009 | 185 |             | SPACER, .250 Thk Nylon (back) (after 1991) .....     | 2                     |  |  |  |
| 28                    | P              | 150828 | 312 |             | FLG, Bolt, 1/4-20 x 1/2" .....                       | 2                     |  |  |  |
| 29                    | P              | 129360 | 015 |             | FLG, Nut Lock, 1/4-20 .....                          | 2                     |  |  |  |

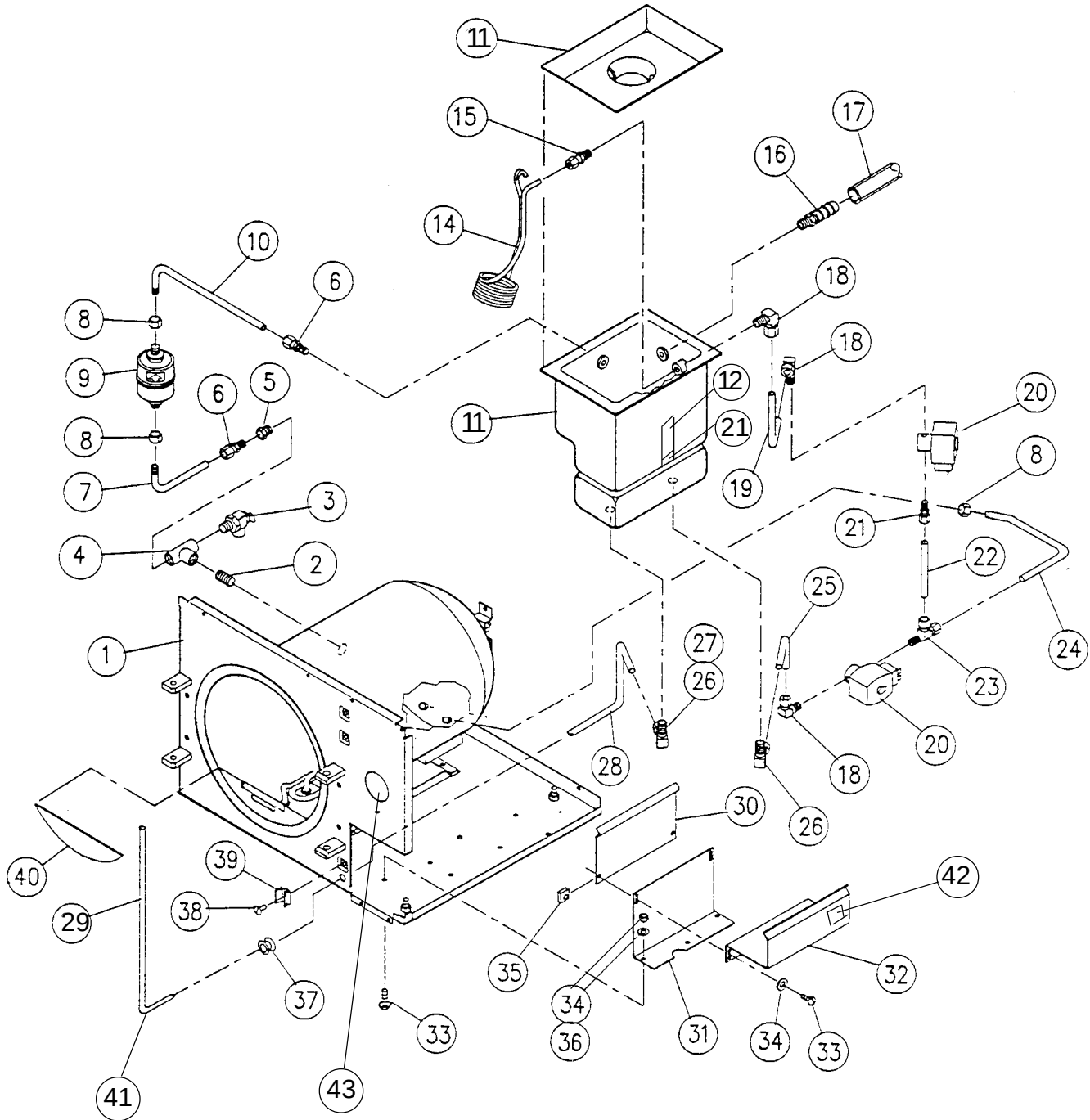


**Figure 8-4. Reservoir and Piping Assembly (before 7/1/91)**

| FIG. &<br>ITEM<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                                       | UNITS PER<br>ASSEMBLY |  |  |  |
|-----------------------|----------------|--------|-----|-------------|---------------------------------------------------|-----------------------|--|--|--|
| 8-4                   |                |        |     |             | RESERVOIR AND PIPING ASSEMBLY (Before 7/91) ..... | X                     |  |  |  |
| 1                     | P              |        |     |             | SHELL AND BASE ASSEMBLY .....                     | 1                     |  |  |  |
| 2                     | P              | 29162  | 091 |             | NIPPLE, Pipe .....                                | 1                     |  |  |  |
| 3                     | P              | 418335 | 216 |             | RELIEF VALVE .....                                | 1                     |  |  |  |
| 4                     | P              | 400009 | 087 |             | TEE .....                                         | 1                     |  |  |  |
| 5                     | P              | 76053  | 042 |             | BUSHING, Reducing .....                           | 1                     |  |  |  |
| 6                     | P              | 52737  | 091 |             | FITTING, Compression .....                        | 1                     |  |  |  |
| 7                     | P              | 400027 | 714 |             | TUBE, Vent Lower .....                            | 1                     |  |  |  |
| 8                     | P              | 129357 | 611 |             | NUT, Fitting .....                                | 4                     |  |  |  |
| 9                     | P              | 400009 | 085 |             | AIR VENT .....                                    | 1                     |  |  |  |
| 10                    | P              | 400027 | 715 |             | TUBE, Vent Upper .....                            | 1                     |  |  |  |
| 11                    | P              | 422922 | 143 |             | TANK ASSEMBLY (not shown) .....                   | 1                     |  |  |  |
| 12                    | P              | 400009 | 127 |             | TUBE, Reservoir (inside) .....                    | 1                     |  |  |  |
| 14                    | P              | 422922 | 153 |             | COIL, Condenser .....                             | 1                     |  |  |  |
| 15                    | P              | 43289  | 091 |             | FITTING, STR 1/4 ODT x 1/8 NPT .....              | 1                     |  |  |  |
| 16                    | P              | 413720 | 344 |             | FITTING, Barb .....                               | 1                     |  |  |  |
| 17                    | P              | 129357 | 656 |             | TUBING 1/2"ID .....                               | 1                     |  |  |  |
| 18                    | P              | 6750   | 091 |             | FITTING, ELL, 5/16 ODT x 1/8 NPT .....            | 3                     |  |  |  |
| 19                    | P              | 413720 | 341 |             | TUBE, Copper .....                                | 1                     |  |  |  |
| 20                    | P              | 93910  | 910 |             | VALVE, Solenoid Assembly .....                    | 2                     |  |  |  |
| •                     | P              | 764320 | 920 |             | REPAIR KIT .....                                  |                       |  |  |  |
| •                     | P              | 762072 | 002 |             | COIL .....                                        |                       |  |  |  |
| 21                    | P              | 129359 | 112 |             | FITTING, STR 5/16 ODT x 1/8 NPT x 5/16 ODT .....  | 2                     |  |  |  |
| 22                    | P              | 129361 | 140 |             | TUBE, Exhaust Lower .....                         | 1                     |  |  |  |
| 23                    | P              | 6774   | 091 |             | FITTING, TEE 5/16 ODT x 1/8 NPT x 5/16 ODT .....  | 1                     |  |  |  |
| 24                    | P              | 418335 | 215 |             | TUBE, Fill .....                                  | 1                     |  |  |  |
| 25                    | P              | 413720 | 342 |             | TUBE, Copper .....                                | 1                     |  |  |  |
| 26                    | P              | 7033   | 091 |             | FITTING, ELL .....                                | 2                     |  |  |  |
| 27                    | P              | 84371  | 004 |             | INSERT, Tube .....                                | 1                     |  |  |  |
| 28                    | P              | 400009 | 206 |             | TUBE, Drain .....                                 | 1                     |  |  |  |
| 29                    | P              | 400009 | 207 |             | TUBE, Siteglass .....                             | 1                     |  |  |  |
| 30                    | P              | 418335 | 340 |             | MOUNT, Rear, Reservoir .....                      | 1                     |  |  |  |
| 31                    | P              | 418335 | 212 |             | SUPPORT, Reservoir .....                          | 1                     |  |  |  |
| 32                    | P              | 418335 | 211 |             | MOUNT, Front, Reservoir .....                     | 1                     |  |  |  |
| 33                    | P              | 93910  | 937 |             | SCREW, SEMS #10-24 x 1/2 .....                    | 6                     |  |  |  |
| 34                    | P              | 20844  | 061 |             | WASHER, Flat .....                                | 6                     |  |  |  |
| 35                    | P              | 413720 | 336 |             | NUT, Speed, #10-24 .....                          | 2                     |  |  |  |
| 36                    | P              | 43287  | 045 |             | NUT, #10-24 .....                                 | 6                     |  |  |  |
| 37                    | P              | 79821  | 001 |             | GROMMET .....                                     | 1                     |  |  |  |
| 38                    | P              | 74647  | 061 |             | SCREW, Self-Tapping, #4 x 1/4 .....               | 1                     |  |  |  |
| 39                    | P              | 129360 | 900 |             | CLIP, Drain Tube .....                            | 3                     |  |  |  |
| 40                    | P              | 764327 | 812 |             | SILICON FOAM with adhesive .....                  | 1                     |  |  |  |
| 41                    | P              | 400009 | 205 |             | ELBOW PLASTIC .....                               | 1                     |  |  |  |
| 42                    | P              | 82645  | 001 |             | LABEL, Warning Fuse .....                         | 1                     |  |  |  |
| 43                    | P              | 001201 | 400 |             | EDGE, Moulding, Nylon .....                       | A/R                   |  |  |  |

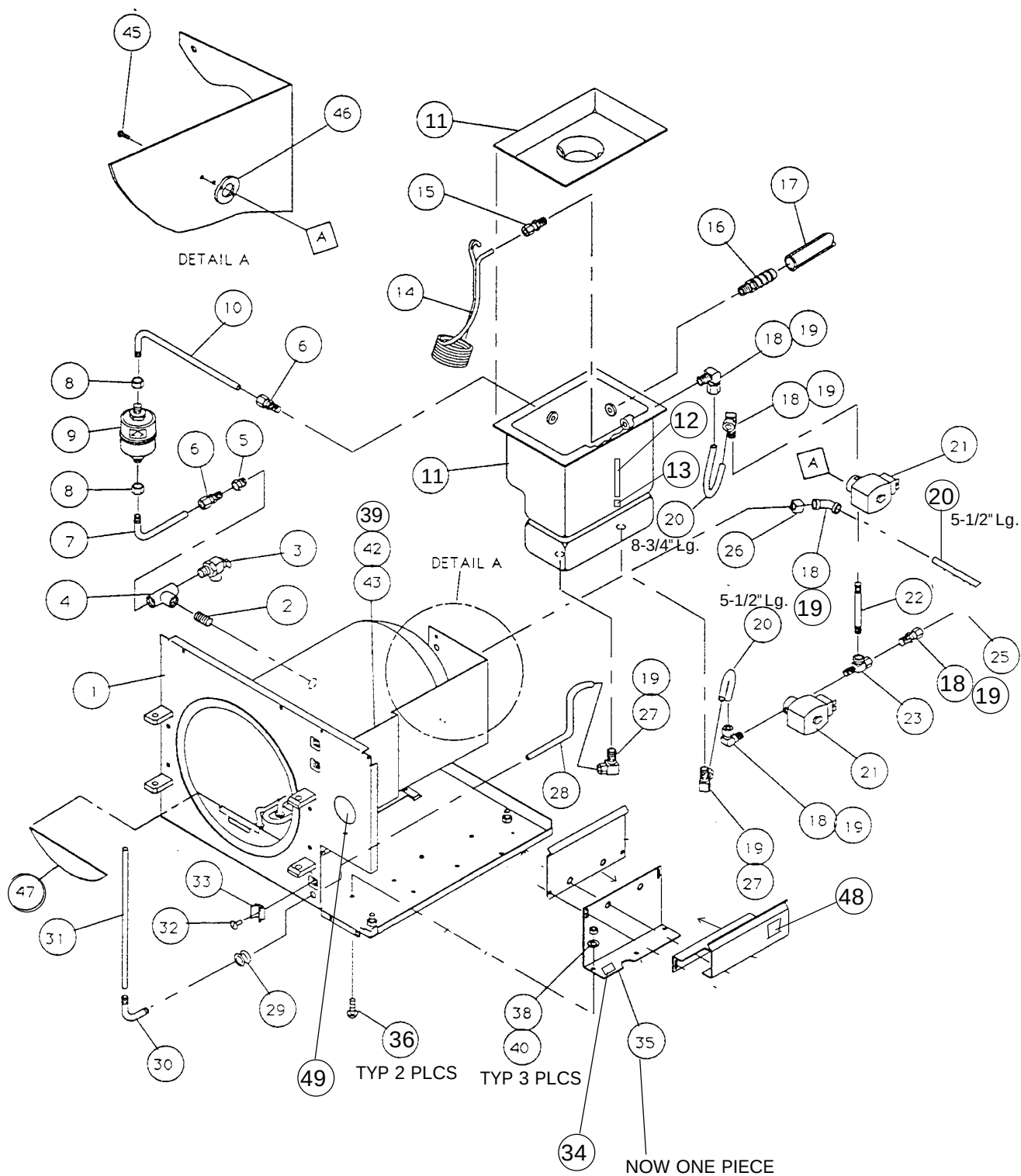


**Figure 8-5. Reservoir and Piping Assembly (after 7/1/91)**

| FIG. &<br>ITEM<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                                      | UNITS PER<br>ASSEMBLY |  |  |  |
|-----------------------|----------------|--------|-----|-------------|--------------------------------------------------|-----------------------|--|--|--|
| 8-5                   |                |        |     |             | RESERVOIR AND PIPING ASSEMBLY (After 7/91) ..... | X                     |  |  |  |
| 1                     | P              |        |     |             | SHELL AND BASE ASSEMBLY .....                    | 1                     |  |  |  |
| 2                     | P              | 29162  | 091 |             | NIPPLE, Pipe .....                               | 1                     |  |  |  |
| 3                     | P              | 418335 | 216 |             | RELIEF VALVE .....                               | 1                     |  |  |  |
| 4                     | P              | 400009 | 087 |             | TEE .....                                        | 1                     |  |  |  |
| 5                     | P              | 76053  | 042 |             | BUSHING, Reducing .....                          | 1                     |  |  |  |
| 6                     | P              | 52737  | 091 |             | FITTING, Compression .....                       | 1                     |  |  |  |
| 7                     | P              | 400027 | 714 |             | TUBE, Vent Lower .....                           | 1                     |  |  |  |
| 8                     | P              | 129357 | 611 |             | NUT, Fitting .....                               | 2                     |  |  |  |
| 9                     | P              | 400009 | 085 |             | AIR VENT .....                                   | 1                     |  |  |  |
| 10                    | P              | 400027 | 715 |             | TUBE, Vent Upper .....                           | 1                     |  |  |  |
| 11                    | P              | 422922 | 143 |             | TANK ASSEMBLY .....                              | 1                     |  |  |  |
| 12                    | P              | 400009 | 127 |             | TUBE, Reservoir .....                            | 1                     |  |  |  |
| 13                    | P              | 80917  | 091 |             | FTG STR., 5/16 OD x 1/8 NPT .....                | 1                     |  |  |  |
| 14                    | P              | 422922 | 153 |             | COIL, Condenser .....                            | 1                     |  |  |  |
| 15                    | P              | 43289  | 091 |             | FITTING, STR 1/4ODT x 1/8NPT .....               | 1                     |  |  |  |
| 16                    | P              | 413720 | 344 |             | FITTING, Barb .....                              | 1                     |  |  |  |
| 17                    | P              | 129357 | 656 |             | TUBING 1/2"ID .....                              | 1                     |  |  |  |
| 18                    | P              | 400009 | 211 |             | FITTING, ELL, 5/16 ODT x 1/8 NPT .....           | 4                     |  |  |  |
| 19                    | P              | 84371  | 004 |             | INSERT, Tube .....                               | 5                     |  |  |  |
| 20                    | P              | 3500   | 772 |             | TUBE, Teflon .....                               | A/R                   |  |  |  |
| 21                    | P              | 93910  | 910 |             | VALVE, Solenoid Assembly .....                   | 2                     |  |  |  |
| •                     | P              | 764320 | 920 |             | REPAIR KIT .....                                 |                       |  |  |  |
| •                     | P              | 764323 | 940 |             | COIL, Din Type .....                             |                       |  |  |  |
| •                     | P              | 762072 | 002 |             | COIL, Wire Leads .....                           |                       |  |  |  |
| 22                    | P              | 28904  | 091 |             | NIPPLE, Brass, 1/8 NPT x 3-1/2" .....            | 1                     |  |  |  |
| 23                    | P              | 400009 | 213 |             | TEE, Screet, Brass, 1/8 NPT .....                | 1                     |  |  |  |
| 26                    | P              | 400009 | 202 |             | ADAPTER, Brass (Loctite 271) .....               | 1                     |  |  |  |
| 27                    | P              | 400009 | 212 |             | FITTING, Tee, 1/8 NPT x 5/16 ODT .....           | 2                     |  |  |  |
| 28                    | P              | 400009 | 206 |             | TUBE, Reservoir Drain .....                      | 1                     |  |  |  |
| 29                    | P              | 79821  | 001 |             | GROMMET .....                                    | 1                     |  |  |  |
| 30                    | P              | 400009 | 205 |             | ELBOW, Plastic .....                             | 1                     |  |  |  |
| 31                    | P              | 400009 | 207 |             | TUBE, Sight Glass .....                          | 1                     |  |  |  |
| 32                    | P              | 74647  | 061 |             | SCREW, Self-Tapping #4 x 1/4" .....              | 3                     |  |  |  |
| 33                    | P              | 129360 | 900 |             | CLIP, Drain Tube .....                           | 3                     |  |  |  |
| 34                    | P              | 129360 | 483 |             | STICKER, Ground .....                            | 1                     |  |  |  |
| 35                    | P              | 400077 | 469 |             | SUPPORT, Reservoir .....                         | 1                     |  |  |  |
| 36                    | P              | 93910  | 939 |             | SCREW, Sems, #10-24x 3/4" .....                  | 2                     |  |  |  |
| 38                    | P              | 20844  | 061 |             | WASHER, Flat .....                               | 6                     |  |  |  |
| 39                    | P              | 413720 | 336 |             | SCREW, Sems, #10-24 x 3/4 Lg. ....               | 2                     |  |  |  |
| 40                    | P              | 129360 | 541 |             | NUT, Keps, #10-24 .....                          | 6                     |  |  |  |
| 42                    | P              | 400077 | 548 |             | BRACKET, Shell Piping .....                      | 1                     |  |  |  |
| 43                    | P              | 150828 | 312 |             | FLANGEBOLT, 1/4-20 x 5/8" .....                  | 2                     |  |  |  |
| 45                    | P              | 93910  | 934 |             | SCREW, Sems, #10-32 x 1/2 .....                  | 2                     |  |  |  |
| 46                    | P              | 400009 | 208 |             | BARRIER, Sound .....                             | 1                     |  |  |  |
| 47                    | P              | 764327 | 812 |             | SILICON FOAM with Adhesive .....                 | 1                     |  |  |  |
| 48                    | P              | 400009 | 252 |             | LABEL, Warning Fuse .....                        | 1                     |  |  |  |
| 49                    | P              | 001201 | 400 |             | EDGE, Moulding Nylon .....                       | A/R                   |  |  |  |

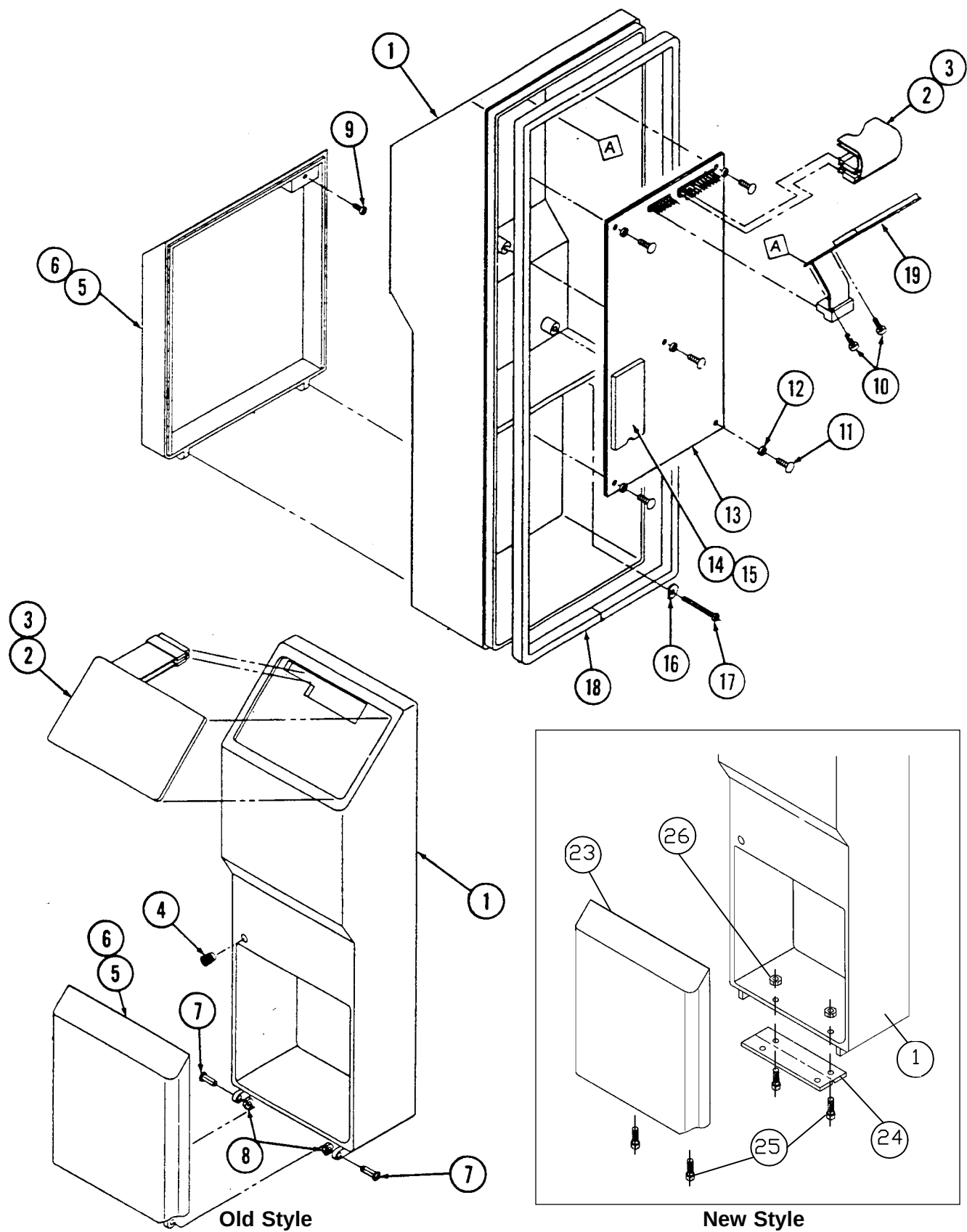


**Figure 8-6. Control Assembly**

| FIG. &<br>ITEM<br>NO. | PART<br>NUMBER |        |        | S<br>V<br>C | DESCRIPTION                                 | UNITS PER<br>ASSEMBLY |   |   |   |
|-----------------------|----------------|--------|--------|-------------|---------------------------------------------|-----------------------|---|---|---|
| 8-6                   | P              | 426637 | 269    |             | <b>CONTROL ASSEMBLY</b>                     |                       |   |   |   |
|                       | P              | 426637 | 271    |             | EAGLE TEN (Fixed) .....                     | X                     |   |   |   |
|                       | P              | 426637 | 270    |             | EAGLE TEN (Fixed, W/Printer) .....          |                       | X |   |   |
|                       | P              | 426637 | 272    |             | EAGLE TEN + (Programmable) .....            |                       |   | X |   |
|                       | P              | 426637 | 272    |             | EAGLE TEN + (Programmable, W/Printer) ..... |                       |   |   | X |
|                       | 1              | P      | 426637 | 265         | COVER, Control .....                        | 1                     | 1 | 1 | 1 |
|                       | 2              | P      | 146655 | 114         | PANEL, Touch, Eagle Ten .....               | 1                     | 1 |   |   |
|                       | 3              | P      | 146655 | 113         | PANEL, Touch, Eagle Ten + .....             |                       |   | 1 | 1 |
|                       | 4              | P      | 129361 | 133         | CATCH, Magnetic .....                       |                       | 1 |   | 1 |
|                       | 5              | P      | 422922 | 145         | DOOR, Printer .....                         | 1                     |   | 1 |   |
|                       | 6              | P      | 422922 | 147         | DOOR, Printer W/Window .....                |                       | 1 |   | 1 |
|                       | 7              | P      | 129361 | 963         | SCRW, RD Head #10-32 x 1/2 .....            | 2                     | 2 | 2 | 2 |
|                       | 8              | P      | 129361 | 964         | NUT, Hex #10-32 .....                       | 2                     | 2 | 2 | 2 |
|                       | 9              | P      | 118404 | 045         | SCREW, #6-32 x 1/4 .....                    |                       | 1 |   | 1 |
|                       | 10             | P      | 129361 | 967         | SCREW, Self-Tapping #4-40 x 3/16 .....      | 2                     | 2 | 2 | 2 |
|                       | 11             | P      | 81681  | 001         | SCREW, Sems, #6 x 32 x 3/8" lg .....        | 5                     | 5 | 5 | 5 |
|                       | 12             | P      | 129352 | 094         | WASHER, Flat #6 .....                       | 5                     | 5 | 5 | 5 |
|                       | 13             | P      | 146653 | 874         | CONTROL BOARD .....                         | 1                     | 1 | 1 | 1 |
|                       | 14             | P      | 93910  | 121         | EPROM EAGLE 10 .....                        | 1                     | 1 |   |   |
|                       | 15             | P      | 93910  | 122         | EPROM EAGLE 10+ .....                       |                       |   | 1 | 1 |
|                       | 16             | P      | 129361 | 972         | SCREW, #6-32 x1 .....                       | 1                     |   | 1 |   |
|                       | 17             | P      | 3985   | 041         | SCREW, #6-32 x 3/4" .....                   | 1                     | 1 | 1 | 1 |
|                       | 18             | P      | 129361 | 134         | GASKET .....                                | 1                     | 1 | 1 | 1 |
|                       | 19             | P      | 93910  | 902         | DISPLAY, LED Assembly .....                 | 1                     | 1 | 1 | 1 |
|                       | 20             | P      | 400009 | 175         | HINGE .....                                 | 1                     | 1 | 1 | 1 |
|                       | 21             | P      | 400009 | 173         | SCREW, #8-32 x 1/2 Nylon .....              | 4                     | 4 | 4 | 4 |
|                       | 22             | P      | 400009 | 174         | NUT, Hex, #8-32 Nylon .....                 | 4                     | 4 | 4 | 4 |
|                       | 23             | P      | 422922 | 145         | DOOR .....                                  | 1                     | 1 | 1 | 1 |
|                       | 24             | P      | 400009 | 175         | HINGE .....                                 | 1                     | 1 | 1 | 1 |
|                       | 25             | P      | 400009 | 173         | SCREW, #8-32 x 1/2 Nylon .....              | 4                     | 4 | 4 | 4 |
|                       | 26             | P      | 400009 | 174         | NUT, Hex, #8-32 Nylon .....                 | 4                     | 4 | 4 | 4 |



| FIG. &<br>ITEM<br>NO.                                        | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                                          | UNITS PER<br>ASSEMBLY |  |  |  |
|--------------------------------------------------------------|----------------|--------|-----|-------------|------------------------------------------------------|-----------------------|--|--|--|
| 8-7                                                          |                |        |     |             | <b>ELECTRICAL COMPONENTS (120 V, Pre 7/91) .....</b> | <b>X</b>              |  |  |  |
| 1                                                            | P              | 93910  | 913 |             | SWITCH, Rocker .....                                 | 1                     |  |  |  |
| 2                                                            | P              | 422922 | 144 |             | ENCLOSURE, Back .....                                | 1                     |  |  |  |
| 3                                                            | P              | 150476 | 930 |             | WIRE, Tie Mount .....                                | 1                     |  |  |  |
| 4                                                            | P              | 93908  | 034 |             | SCREW, SEMS #6-32 x 1/2 lg .....                     | 2                     |  |  |  |
| 5                                                            | P              | 84114  | 002 |             | WASHER, Flat .....                                   | 4                     |  |  |  |
| 6                                                            | P              | 84121  | 002 |             | NUT, #6-32 .....                                     | 2                     |  |  |  |
| 7                                                            | P              | 93910  | 911 |             | RECEPTACLE .....                                     | 1                     |  |  |  |
| 8                                                            | P              | 93910  | 912 |             | CONTROL, Over-Temperature .....                      | 1                     |  |  |  |
| 9                                                            | P              | 93910  | 916 |             | PLATE, Support .....                                 | 1                     |  |  |  |
| 10                                                           | P              | 93908  | 033 |             | SCREW, SEMS #6-32 x 1/4 lg .....                     | 4                     |  |  |  |
| 11                                                           | P              | 43287  | 045 |             | NUT, #10-24 .....                                    | 5                     |  |  |  |
| 12                                                           | P              | 20844  | 061 |             | WASHER, Flat #10 .....                               | 4                     |  |  |  |
| 13                                                           | P              | 93910  | 937 |             | SCREW, SEMS #10-24 x 1/2 lg .....                    | 3                     |  |  |  |
| 14                                                           | P              |        |     | X           | TRIAC, Control Assembly .....                        | 1                     |  |  |  |
| 15                                                           | P              | 136807 | 856 |             | POWER SUPPLY ASSEMBLY .....                          | 1                     |  |  |  |
| 16                                                           | P              |        |     |             | ENCLOSURE (See Fig. 6-3) .....                       | 1                     |  |  |  |
| 17                                                           | P              | 93910  | 149 |             | BRACKET, Door Switch .....                           | 1                     |  |  |  |
| 18                                                           | P              | 93910  | 936 |             | SCREW, SEMS #4-40 x 3/4 lg .....                     | 2                     |  |  |  |
| 19                                                           | P              | 93910  | 148 |             | SWITCH, Limit .....                                  | 1                     |  |  |  |
| 20                                                           | P              | 93910  | 939 |             | SCREW, SEMS #10-24 x 3/4 lg .....                    | 1                     |  |  |  |
| X = Contact your STERIS technician for replacement of triac. |                |        |     |             |                                                      |                       |  |  |  |

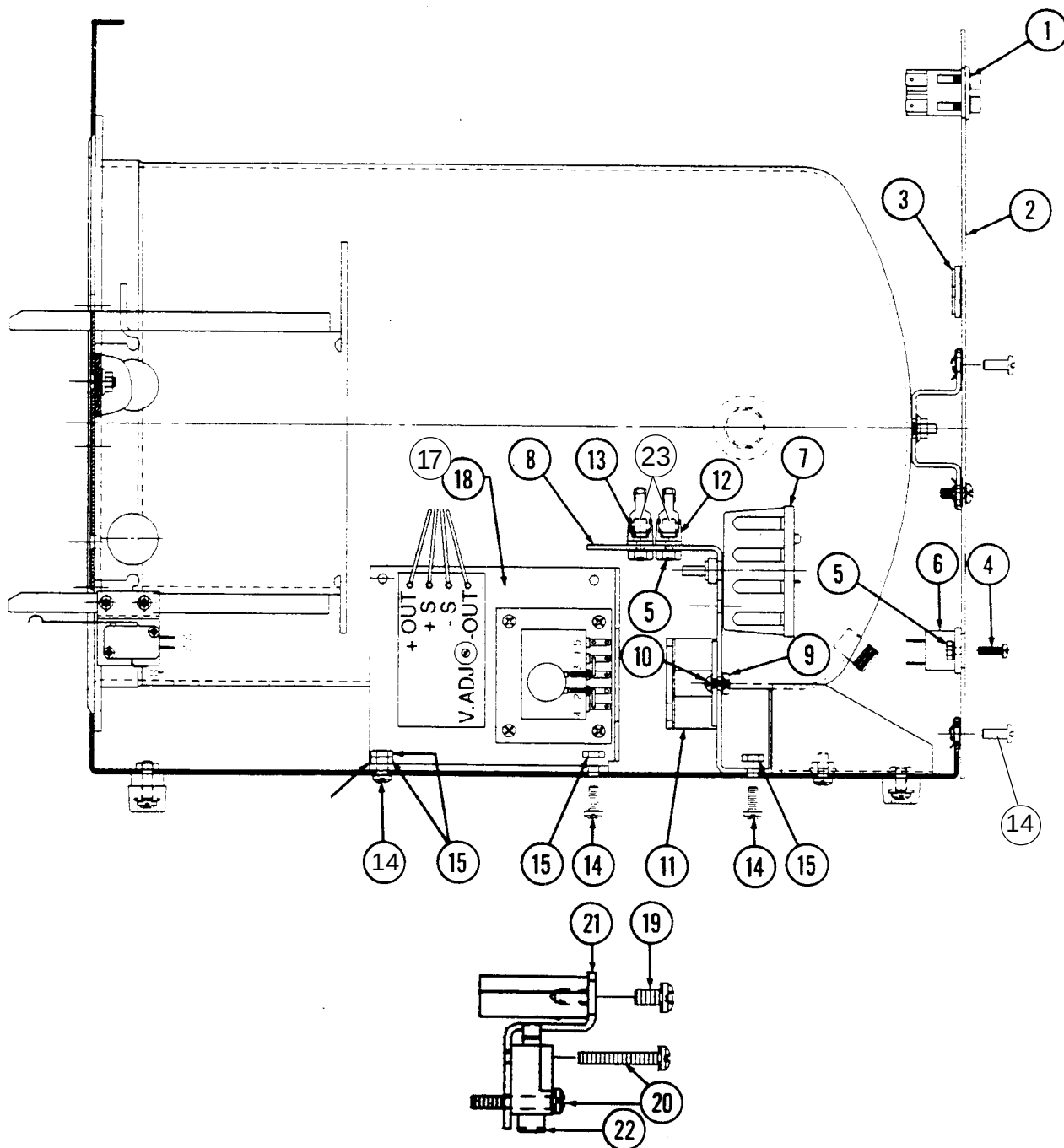


**Figure 8-8. Electrical Components with Sgl. Power Switch (after 1/1/97)**

| FIG. &<br>ITEM<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                                                               | UNITS PER<br>ASSEMBLY |   |  |  |
|-----------------------|----------------|--------|-----|-------------|---------------------------------------------------------------------------|-----------------------|---|--|--|
|                       |                |        |     |             |                                                                           |                       |   |  |  |
| 8-8                   |                |        |     |             | ELECTRICAL COMPONENTS (120 V, After 7/91) .....                           | X                     |   |  |  |
|                       |                |        |     |             | ELECTRICAL COMPONENTS (240 V, After 7/91)<br>with Sql. Power Switch ..... |                       | X |  |  |
| 1                     | P              | 93910  | 913 |             | SWITCH, Rocker .....                                                      | 1                     | 1 |  |  |
| 2                     | P              | 422922 | 144 |             | ENCLOSURE, Back, with Sql. Switch .....                                   | 1                     | 1 |  |  |
| 3                     | P              | 150476 | 930 |             | WIRE, Tie Mount .....                                                     | 1                     | 1 |  |  |
| 4                     | P              | 93908  | 034 |             | SCREW, SEMS #6-32 x 1/2 lg .....                                          | 2                     | 2 |  |  |
| 5                     | P              | 84121  | 002 |             | NUT, #6-32 .....                                                          | 4                     | 4 |  |  |
| 6                     | P              | 400028 | 002 |             | RECEPTACLE .....                                                          | 1                     | 2 |  |  |
| 7                     | P              | 93910  | 912 |             | CONTROL, Over-Temperature .....                                           | 1                     | 1 |  |  |
| 8                     | P              | 400077 | 470 |             | RELAY MOUNT .....                                                         | 1                     | 1 |  |  |
| 9                     | P              | 129359 | 531 |             | NUT, Keps, #8-32 .....                                                    | 2                     | 2 |  |  |
| 10                    | P              | 93908  | 037 |             | SCREW, Sems, 8-32 x 1/2" Lg. ....                                         | 2                     | 2 |  |  |
| 11                    | P              | 129360 | 018 |             | RELAY .....                                                               | 1                     | 1 |  |  |
| 12                    | P              | 150822 | 678 |             | BLOCK, Fuse .....                                                         | 2                     | 2 |  |  |
| 13                    | P              | 93908  | 039 |             | SCREW, Sems.....                                                          | 2                     | 2 |  |  |
| 14                    | P              | 93910  | 937 |             | SCREW, Sems, #10-24 x 1/2 lg .....                                        | 4                     | 4 |  |  |
| 15                    | P              | 129360 | 541 |             | NUT, Keps, #10 x 24 .....                                                 | 2                     | 2 |  |  |
| 17                    | P              | 400077 | 508 |             | POWER SUPPLY (120 V) .....                                                | 1                     |   |  |  |
| 18                    | P              | 400077 | 509 |             | POWER SUPPLY (240 V) .....                                                |                       | 1 |  |  |
| 19                    | P              | 93908  | 033 |             | SCREW, Sems, #6-32 x 1/4 lg .....                                         | 4                     | 4 |  |  |
| 20                    | P              | 93910  | 936 |             | SCREW, Sems, #4-40 x 3/4 lg .....                                         | 2                     | 2 |  |  |
| 21                    | P              | 93910  | 149 |             | BRACKET, Door Switch .....                                                | 1                     | 1 |  |  |
| 22                    | P              | 93910  | 148 |             | SWITCH, Limit .....                                                       | 1                     | 1 |  |  |
| 23                    | P              | 129361 | 141 |             | FUSE 120 VOLT .....                                                       | 1                     |   |  |  |
|                       | P              | 400000 | 154 |             | FUSE 240 VOLT .....                                                       |                       | 1 |  |  |

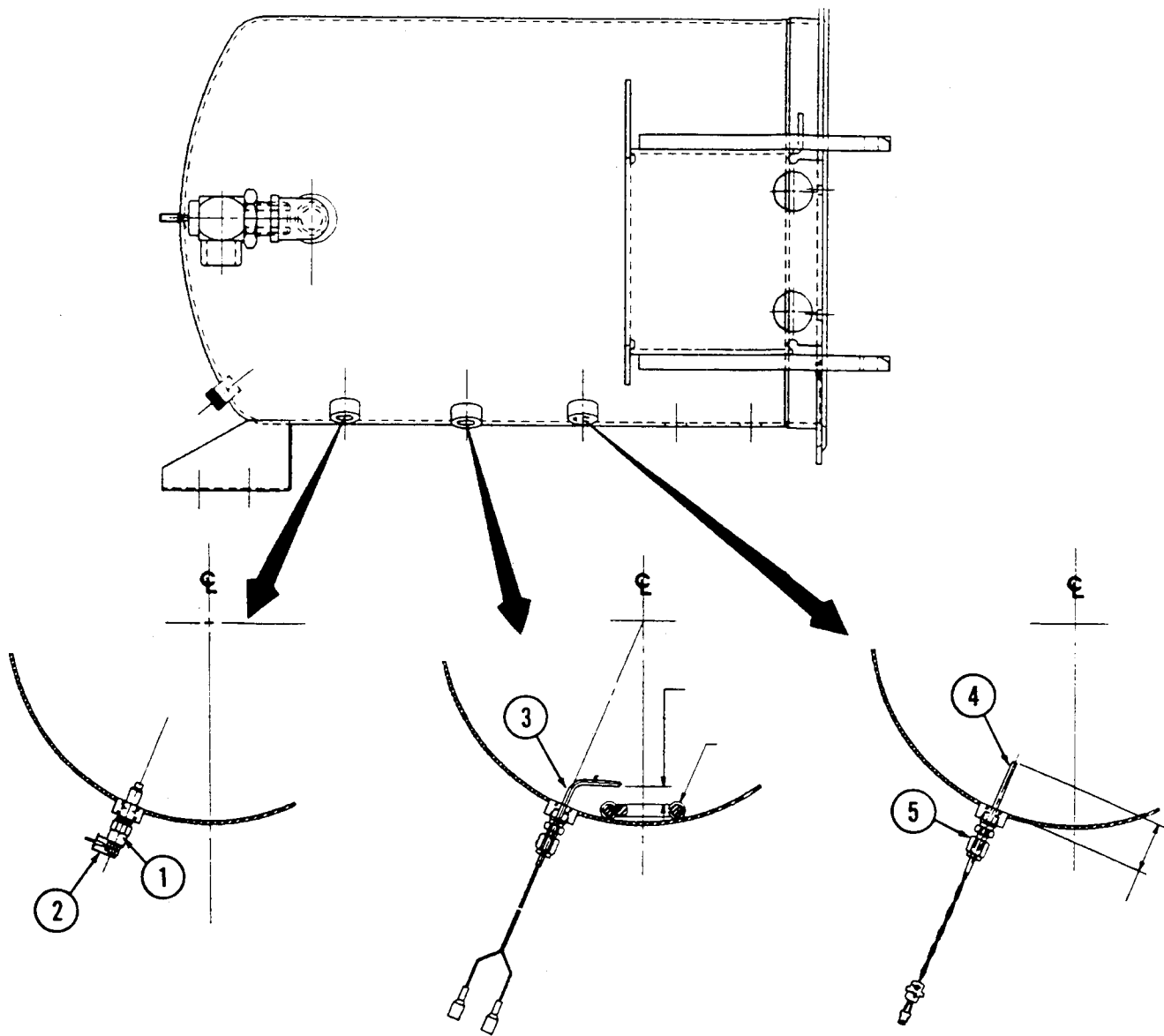


**Figure 8-9. Sensor Assembly**

| FIG. &<br>ITEM<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                  | UNITS PER<br>ASSEMBLY |  |  |  |
|-----------------------|----------------|--------|-----|-------------|------------------------------|-----------------------|--|--|--|
|                       |                |        |     |             |                              |                       |  |  |  |
| <b>8-9</b>            |                |        |     |             | <b>SENSOR ASSEMBLY .....</b> | <b>X</b>              |  |  |  |
| 1                     | P              | 93910  | 908 |             | SENSOR, Water Level .....    | 1                     |  |  |  |
| 2                     | P              | 3500   | 584 |             | TUBING, Heat Shrink .....    | A/R                   |  |  |  |
| 3                     | P              | 93910  | 917 |             | SENSOR, RTD Overtemp .....   | 1                     |  |  |  |
| 4                     | P              | 93910  | 905 |             | THERMISTOR ASSEMBLY .....    | 1                     |  |  |  |
| 5                     | P              | 129357 | 536 |             | FITTING, Thermistor .....    | 1                     |  |  |  |

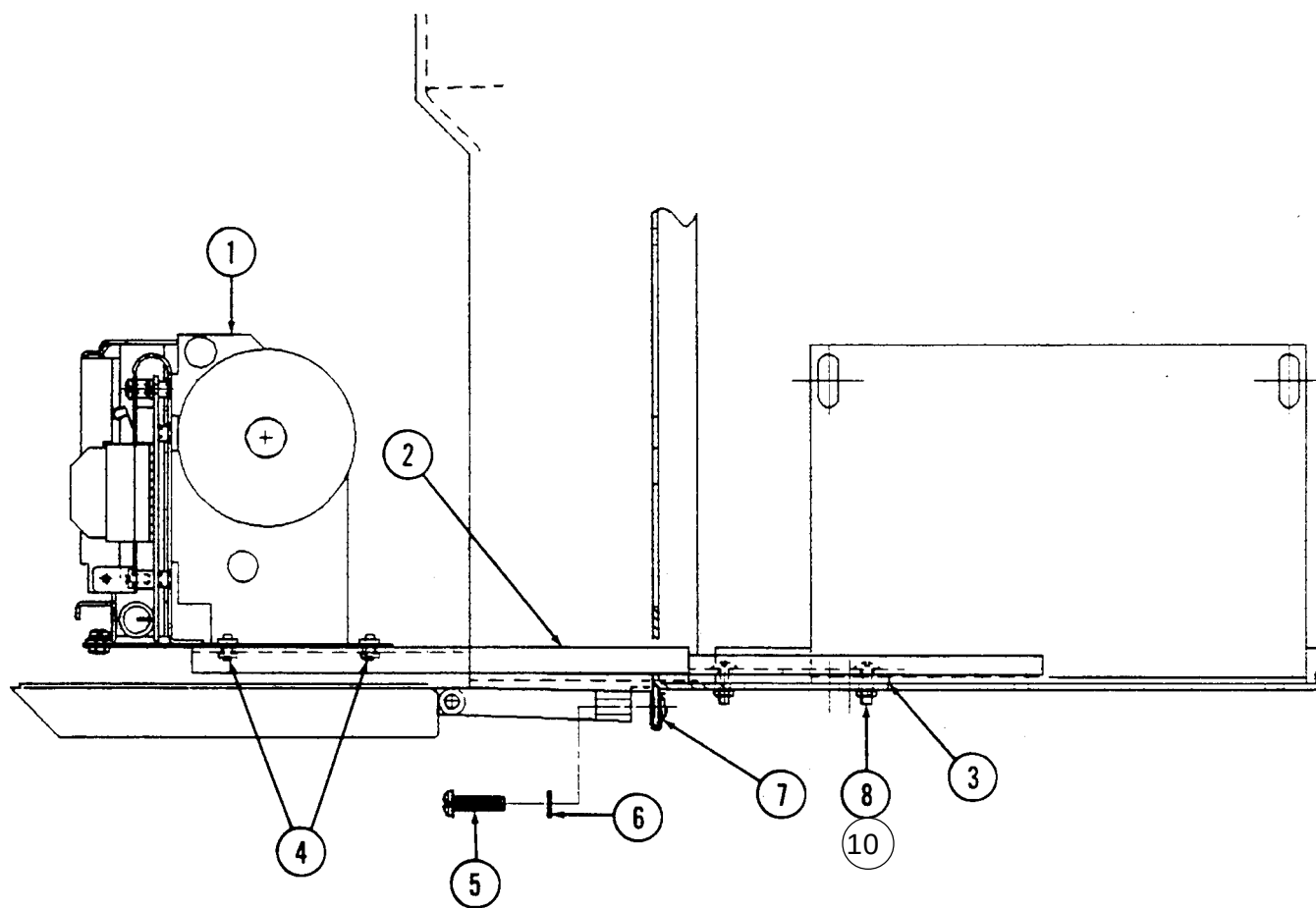


**Figure 8-10. Printer Assembly (optional)**

| FIG. &<br>ITEM<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                                        | UNITS PER<br>ASSEMBLY |  |  |  |
|-----------------------|----------------|--------|-----|-------------|----------------------------------------------------|-----------------------|--|--|--|
|                       |                |        |     |             |                                                    |                       |  |  |  |
| <b>8-10</b>           |                |        |     |             | <b>PRINTER ASSEMBLY (units with printer) .....</b> | <b>X</b>              |  |  |  |
| 1                     | P              | 400096 | 017 |             | PRINTER AND CABLE ASSEMBLY .....                   | 1                     |  |  |  |
| •                     | P              | 146656 | 039 |             | PRINTER ASSEMBLY .....                             |                       |  |  |  |
|                       | P              | 93912  | 377 | *           | PRINTER BOARD ASSEMBLY .....                       |                       |  |  |  |
|                       | P              | 93909  | 399 | *           | PRINTER MOTOR .....                                |                       |  |  |  |
|                       | P              | 755716 | 005 | *           | PRINTER AND CONNECTOR ASSEMBLY .....               |                       |  |  |  |
|                       | P              | 400009 | 125 | *           | DECAL, Printer (not shown) .....                   |                       |  |  |  |
|                       | P              | 93910  | 249 | *           | STUD, Spool .....                                  |                       |  |  |  |
|                       | P              | 43259  | 091 | *           | SCREW, Set, #6-32 x 3/16 Lg. ....                  |                       |  |  |  |
|                       | P              | 93910  | 247 | *           | SPOOL .....                                        |                       |  |  |  |
| 2                     | P              | 400027 | 755 |             | SLIDE .....                                        | 1                     |  |  |  |
| 3                     | P              | 400009 | 130 |             | SPACER .....                                       | 1                     |  |  |  |
| 4                     | P              | 93908  | 033 |             | SCREW, Sems #6-32 x 1/4" .....                     | 2                     |  |  |  |
| 5                     | P              | 31707  | 041 |             | SCREW, #10-24 x 1-1/8" .....                       | 2                     |  |  |  |
| 6                     | P              | 129354 | 174 |             | LOCKWASHER, Star, #10 .....                        | 2                     |  |  |  |
| 7                     | P              | 17958  | 045 |             | NUT, Speed, #10-24 .....                           | 2                     |  |  |  |
| 8                     | P              | 81669  | 006 |             | SCREW, Truss Head, #8-32 x 1/2" .....              | 2                     |  |  |  |
| 9                     | P              | 129359 | 008 |             | PAPER (Package of 5) (not shown) .....             | 1                     |  |  |  |
| 10                    | P              | 129359 | 531 |             | KEPSNUT, #8-32 .....                               | 2                     |  |  |  |
| 11                    | P              | 150476 | 930 |             | WIRE TIE MOUNT (not shown) .....                   | 1                     |  |  |  |

## Section 9: Illustrated Parts Breakdown

### STERIS Ten Sixteen (1016) and Ten Sixteen + (1016+)

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STERIS Ten Sixteen (1016) and Ten Sixteen + (1016+) sterilizer assemblies and components are illustrated and identified on the following pages. Part number description and quantity required for each usage are given. Each indentation in the description represents the assembly level. The UNITS PER ASSEMBLY column is specific for the given assembly or subassembly.

2. Turn to the page indicated and locate the desired part on the illustration.
3. From the illustration, obtain the index number assigned to the part desired. Refer to the accompanying description for specific information regarding the part.

#### 9.0 HOW TO USE THE ILLUSTRATED PARTS BREAKDOWN

1. Determine the function and application of the part required. See Figure Index below and select the most appropriate title. Note the illustration page number.

| FIGURE | TITLE                                        | PAGE |
|--------|----------------------------------------------|------|
| 9-1    | Heater and Drain Tube Assembly               | 9-2  |
| 9-2    | Sensor RTD Thermistor Assembly               | 9-4  |
| 9-3    | Piping Parts Right-hand Side                 | 9-6  |
| 9-4    | Front View of Sterilizer (with Door Removed) | 9-8  |
| 9-5    | Back View of Sterilizer                      | 9-10 |
| 9-6    | Safety Valve Trap Assembly                   | 9-12 |
| 9-7    | Power Supply Assembly                        | 9-14 |
| 9-8    | Rear View of Sterilizer                      | 9-16 |
| 9-9    | Power Switch Assembly                        | 9-18 |
| 9-10   | Front Door Assembly                          | 9-20 |
| 9-11   | Front Door Assembly                          | 9-22 |
| 9-12   | Control Assembly                             | 9-24 |
| 9-13   | Printer Assembly (optional)                  | 9-26 |

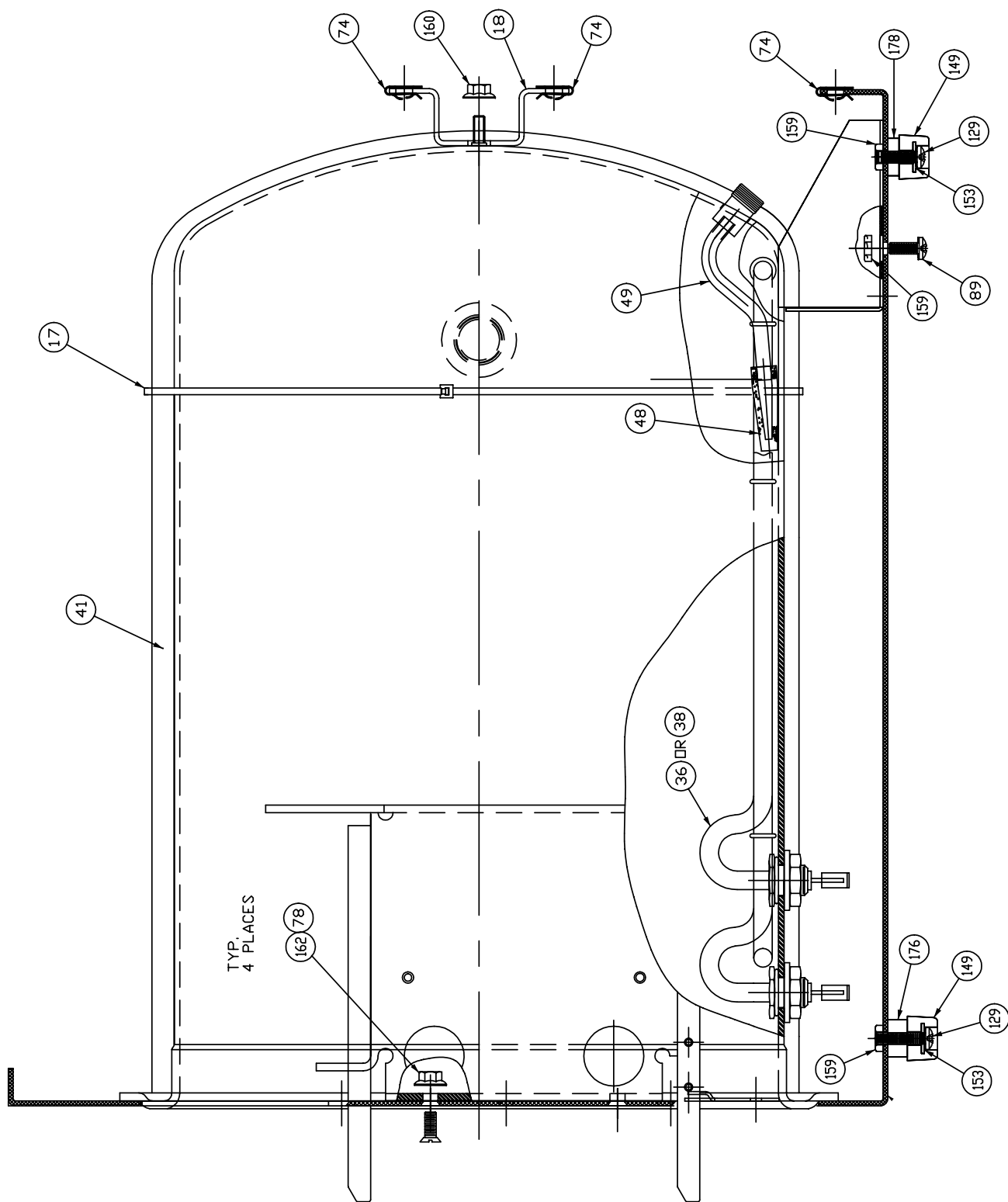


Figure 9-1. Heater and Drain Tube Assembly

| FIG. &<br>INDEX<br>NO. | PART<br>NUMBER |   |        | S<br>V<br>C | DESCRIPTION                                     | UNITS PER<br>ASSEMBLY |    |    |    |    |    |    |    |
|------------------------|----------------|---|--------|-------------|-------------------------------------------------|-----------------------|----|----|----|----|----|----|----|
| 9-1                    |                |   |        |             | <b>CONTROL ASSEMBLY</b>                         |                       |    |    |    |    |    |    |    |
|                        |                |   |        |             | 1016 (Fixed 120V) .....                         |                       |    |    |    |    |    |    | X  |
|                        |                |   |        |             | 1016 (Fixed with Printer 120V) .....            |                       |    |    |    |    | X  |    |    |
|                        |                |   |        |             | 1016 (Fixed 220V) .....                         |                       |    | X  |    |    |    |    |    |
|                        |                |   |        |             | 1016 (Fixed with Printer 220V) .....            |                       | X  |    |    |    |    |    |    |
|                        |                |   |        |             | 1016 + (Variable 120V) .....                    |                       |    |    |    |    |    | X  |    |
|                        |                |   |        |             | 1016 + (Variable with Printer 120V) .....       |                       |    |    | X  |    |    |    |    |
|                        |                |   |        |             | 1016 + (Variable 220V) .....                    |                       |    | X  |    |    |    |    |    |
|                        |                |   |        |             | 1016 + (Variable with Printer 220V) .....       | X                     |    |    |    |    |    |    |    |
|                        | 17             | P | 413720 | 526         | TIE, Cable .....                                | 1                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  |
|                        | 18             | P | 413720 | 339         | MOUNT, Rear .....                               | 1                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  |
|                        | 36             | P | 136807 | 855         | HEATER ASSY., 120 VAC .....                     |                       |    |    |    | 1  | 1  | 1  | 1  |
|                        | 38             | P | 400077 | 468         | HEATER ASSY., 230 VAC .....                     | 1                     | 1  | 1  | 1  |    |    |    |    |
|                        | 41             | P | 422922 | 155         | INSULATION, Shell .....                         | 1                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  |
|                        | 48             | P | 129357 | 645         | FILTER, Water .....                             | 1                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  |
|                        | 49             | P | 93910  | 915         | TUBE, Filter .....                              | 1                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  |
|                        | 74             | P | 413720 | 336         | SPEED NUT, #10-24 .....                         | 10                    | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
|                        | 78             | P | 430349 | 045         | SCREW, #10-24, Flat, Undercut Head, Slotted ... | 4                     | 4  | 4  | 4  | 4  | 4  | 4  | 4  |
|                        | 89             | P | 93910  | 937         | SCREW, Sems, #10-24 x 1/2" Lg. ....             | 1                     | 1  | 1  | 1  |    |    |    |    |
|                        | 129            | P | 31707  | 041         | SCREW, #10-24, 1-1/8" Lg. ....                  | 6                     | 6  | 6  | 6  | 6  | 6  | 6  | 6  |
|                        | 149            | P | 400009 | 203         | BUMPER, Feet, Hard Duro 90 .....                | 4                     | 4  | 4  | 4  | 4  | 4  | 4  | 4  |
|                        | 153            | P | 129354 | 174         | LOCKWASHER, Star, #10 .....                     | 5                     | 5  | 5  | 5  | 5  | 5  | 5  | 5  |
|                        | 159            | P | 129360 | 541         | KEPSNUT, #10-24 .....                           | 1                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  |
|                        | 160            | P | 129360 | 016         | FLANGE, Locknut, #10-32 .....                   | 1                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  |
|                        | 162            | P | 93912  | 192         | FLANGE, Locknut, #10-24 .....                   | 4                     | 4  | 4  | 4  | 4  | 4  | 4  | 4  |
|                        | 176            | P | 400009 | 184         | SPACER, .500 Thk Nylon .....                    | 2                     | 2  | 2  | 2  | 2  | 2  | 2  | 2  |
|                        | 178            | P | 400009 | 185         | SPACER, .250 Thk Nylon .....                    | 2                     | 2  | 2  | 2  | 2  | 2  | 2  | 2  |

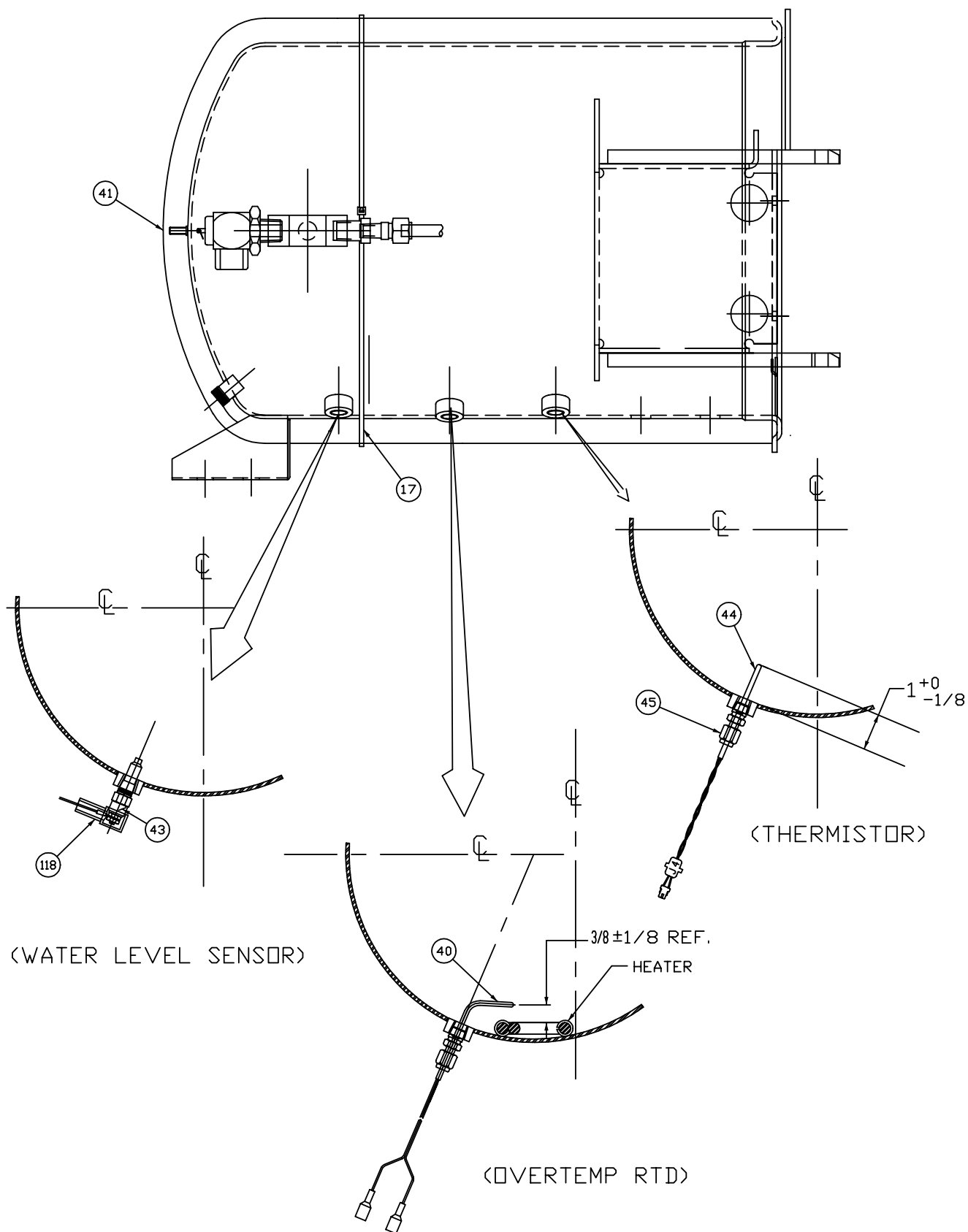


**Figure 9-2. Sensor RTD Thermistor Assembly**

| FIG. &<br>INDEX<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                               | UNITS PER<br>ASSEMBLY |   |   |   |   |   |   |   |
|------------------------|----------------|--------|-----|-------------|-------------------------------------------|-----------------------|---|---|---|---|---|---|---|
|                        |                |        |     |             |                                           |                       |   |   |   |   |   |   |   |
| 9-2                    |                |        |     |             | <b>CONTROL ASSEMBLY</b>                   |                       |   |   |   |   |   |   |   |
|                        |                |        |     |             | 1016 (Fixed 120V) .....                   |                       |   |   |   |   |   |   | X |
|                        |                |        |     |             | 1016 (Fixed with Printer 120V) .....      |                       |   |   |   |   | X |   |   |
|                        |                |        |     |             | 1016 (Fixed 220V) .....                   |                       |   | X |   |   |   |   |   |
|                        |                |        |     |             | 1016 (Fixed with Printer 220V) .....      |                       | X |   |   |   |   |   |   |
|                        |                |        |     |             | 1016 + (Variable 120V) .....              |                       |   |   |   |   |   | X |   |
|                        |                |        |     |             | 1016 + (Variable with Printer 120V) ..... |                       |   |   | X |   |   |   |   |
|                        |                |        |     |             | 1016 + (Variable 220V) .....              |                       |   | X |   |   |   |   |   |
|                        |                |        |     |             | 1016 + (Variable with Printer 220V) ..... | X                     |   |   |   |   |   |   |   |
|                        |                |        |     |             |                                           |                       |   |   |   |   |   |   |   |
| 17                     | P              | 413720 | 526 |             | TIE, Cable .....                          | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 40                     | P              | 93910  | 917 |             | SENSOR, RTD, Overtemp with Ftg. ....      | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 41                     | P              | 422922 | 155 |             | INSULATION, Shell .....                   | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 43                     | P              | 93910  | 908 |             | SENSOR, Water Level .....                 | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 44                     | P              | 93910  | 905 |             | THERMISTOR, Assy. ....                    | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 45                     | P              | 129357 | 536 |             | FITTING, Thermistor .....                 | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 118                    | P              | 418335 | 385 |             | BOOT, Insulating .....                    | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

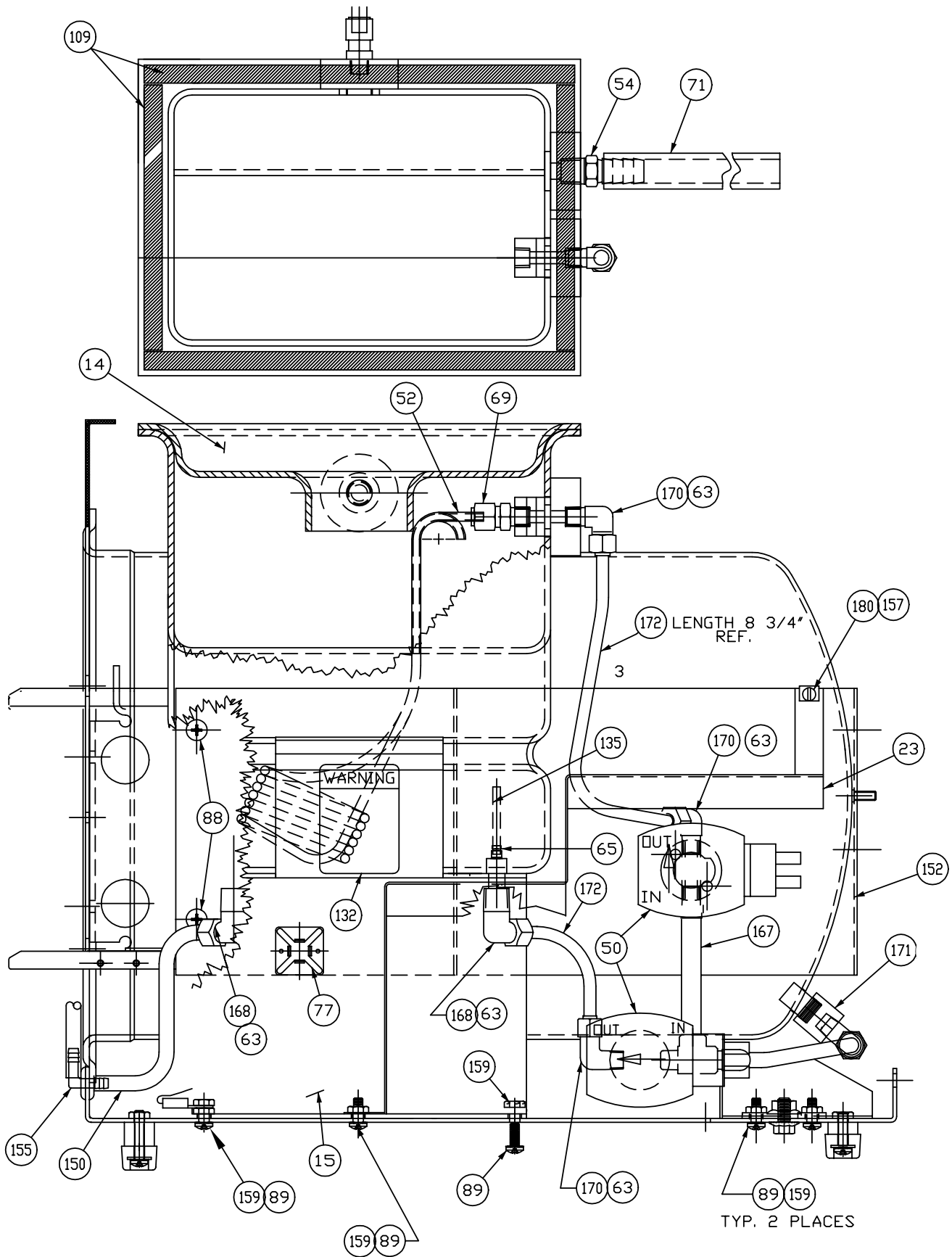


**Figure 9-3. Piping Parts Right-hand Side**

| FIG. &<br>INDEX<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                                     | UNITS PER<br>ASSEMBLY |     |     |     |     |     |     |     |
|------------------------|----------------|--------|-----|-------------|-------------------------------------------------|-----------------------|-----|-----|-----|-----|-----|-----|-----|
| 9-3                    |                |        |     |             | <b>CONTROL ASSEMBLY</b>                         |                       |     |     |     |     |     |     |     |
|                        |                |        |     |             | 1016 (Fixed 120V) .....                         |                       |     |     |     |     |     |     | X   |
|                        |                |        |     |             | 1016 (Fixed with Printer 120V) .....            |                       |     |     |     |     | X   |     |     |
|                        |                |        |     |             | 1016 (Fixed 220V) .....                         |                       |     | X   |     |     |     |     |     |
|                        |                |        |     |             | 1016 (Fixed with Printer 220V) .....            |                       | X   |     |     |     |     |     |     |
|                        |                |        |     |             | 1016 + (Variable 120V) .....                    |                       |     |     |     |     |     | X   |     |
|                        |                |        |     |             | 1016 + (Variable with Printer 120V) .....       |                       |     |     | X   |     |     |     |     |
|                        |                |        |     |             | 1016 + (Variable 220V) .....                    |                       |     | X   |     |     |     |     |     |
|                        |                |        |     |             | 1016 + (Variable with Printer 220V) .....       | X                     |     |     |     |     |     |     |     |
|                        |                |        |     |             |                                                 |                       |     |     |     |     |     |     |     |
| 14                     | P              | 422922 | 143 |             | RESERVOIR, Tank, Assembly .....                 | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 15                     | P              | 400077 | 469 |             | SUPPORT, Reservoir .....                        | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 23                     | P              | 400096 | 031 |             | COVER, Electronics .....                        | 1                     | 1   | 1   | 1   |     |     |     |     |
| 50                     | P              | 93910  | 910 |             | VALVE, Sol., Assembly .....                     | 2                     | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
|                        | P              | 764320 | 920 |             | • REPAIR KIT .....                              | 2                     | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
|                        | P              | 764323 | 940 |             | • COIL DIN .....                                | 2                     | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
|                        | P              | 762072 | 002 |             | • COIL WITH WIRE LEADS .....                    | 2                     | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| 52                     | P              | 422922 | 153 |             | COIL, Condensor .....                           | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 54                     | P              | 413720 | 344 |             | FITTING, Barb .....                             | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 63                     | P              | 84371  | 004 |             | INSERT, Tube .....                              | 7                     | 7   | 7   | 7   | 7   | 7   | 7   | 7   |
| 65                     | P              | 80917  | 091 |             | FITTING, Str., 5/16 ODT x 1/8" NPT .....        | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 69                     | P              | 43289  | 091 |             | FITTING, Str., 1/4" ODT x 1/8" NPT .....        | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 71                     | P              | 129357 | 656 |             | TUBING, 1/2" ID, Overflow (Reservoir) .....     | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 77                     | P              | 150476 | 930 |             | WIRE TIE, Mount .....                           | 1                     | 1   |     |     |     | 1   |     |     |
| 88                     | P              | 93910  | 939 |             | SCREW, Sems., #10-24 x 3/4" Lg. ....            | 9                     | 9   | 9   | 9   | 9   | 9   | 9   | 9   |
| 89                     | P              | 93910  | 937 |             | SCREW, Sems., #10-24 x 1/2" Lg. ....            | 1                     | 1   | 1   | 1   |     |     |     |     |
| 109                    | P              |        |     |             | TAPE, Vinyl Foam, R7200-432 (1/4" x 3/8") ..... | A/R                   | A/R | A/R | A/R | A/R | A/R | A/R | A/R |
| 132                    | P              | 400009 | 252 |             | LABEL, Warning-Fuse .....                       | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 135                    | P              | 400009 | 127 |             | RESERVOIR, Tube .....                           | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 150                    | P              | 400009 | 206 |             | TUBE, Drain, Reservoir .....                    | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 152                    | P              | 400077 | 548 |             | BRACKET, Shell, Piping .....                    | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 155                    | P              | 400009 | 205 |             | ELBOW, Plastic .....                            | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 157                    | P              | 93910  | 934 |             | SEMS, Screw, #10-32 x 1/2" .....                | 2                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 159                    | P              | 129360 | 541 |             | KEPSNUT, #10-24 .....                           | 16                    | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 167                    | P              | 28904  | 091 |             | NIPPLE, Brass, 1/8 NPT x 3-1/2" .....           | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 168                    | P              | 400009 | 212 |             | FITTING, Ell, 1/4 NPT x 5/16 ODT .....          | 2                     | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| 170                    | P              | 400009 | 211 |             | FITTING, Ell, 1/8 NPT x 5/16 ODT .....          | 5                     | 5   | 5   | 5   | 5   | 5   | 5   | 5   |
| 171                    | P              | 400009 | 202 |             | ADAPTOR, Brass .....                            | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 172                    | P              | R-3500 | 772 |             | TUBE, Teflon, 5/16 ODT x 3/16 ID .....          | A/R                   | A/R | A/R | A/R | A/R | A/R | A/R | A/R |
| 180                    | P              | 81015  | 045 |             | SPEED, Nut, #10-32 .....                        | 2                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |

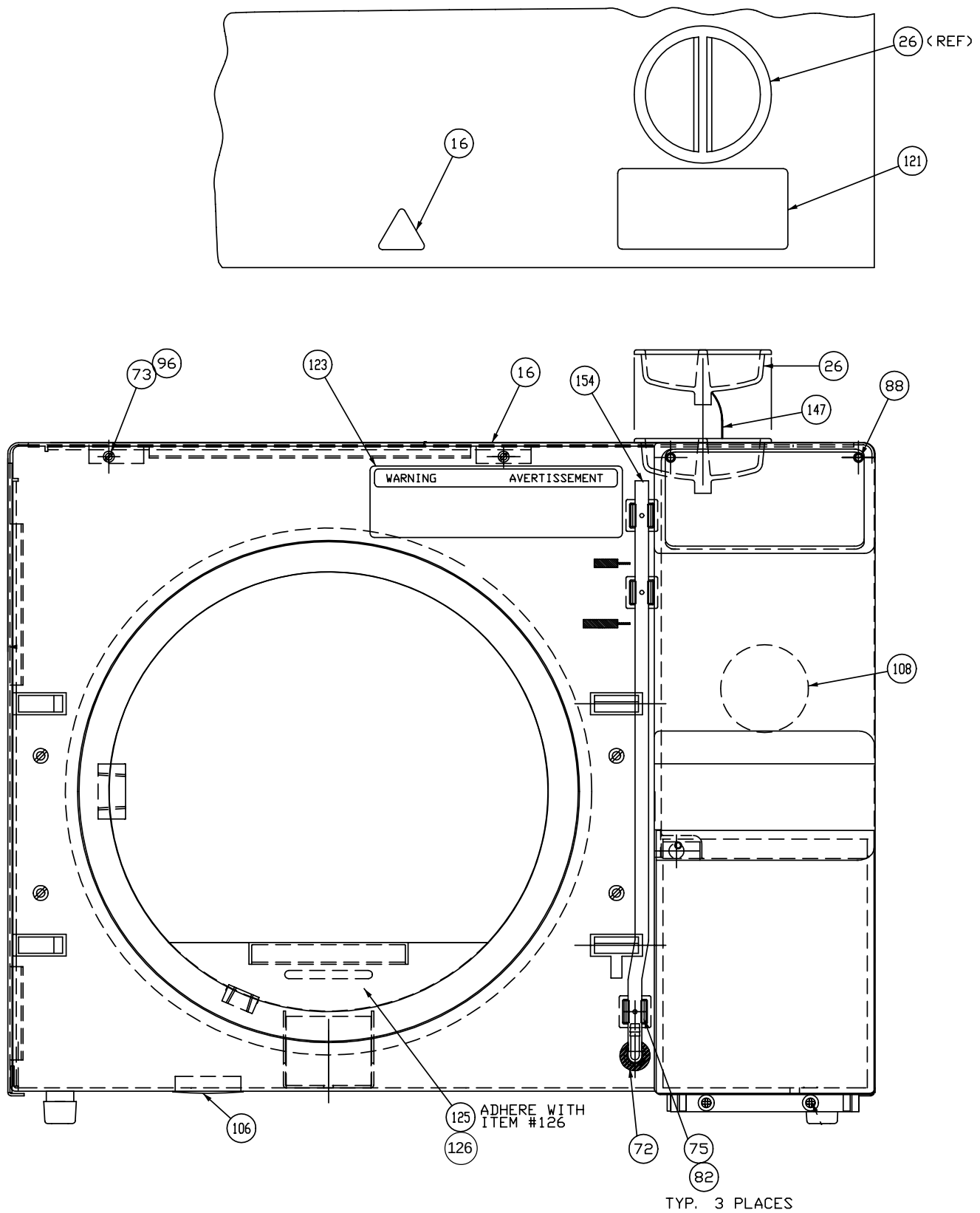


**Figure 9-4. Front View of Sterilizer (with Door Removed)**

| FIG. &<br>INDEX<br>NO. | PART<br>NUMBER |        |        | S<br>V<br>C | DESCRIPTION                                     | UNITS PER<br>ASSEMBLY |     |     |     |     |     |     |     |
|------------------------|----------------|--------|--------|-------------|-------------------------------------------------|-----------------------|-----|-----|-----|-----|-----|-----|-----|
| 9-4                    |                |        |        |             | <b>CONTROL ASSEMBLY</b>                         |                       |     |     |     |     |     |     |     |
|                        |                |        |        |             | 1016 (Fixed 120V) .....                         |                       |     |     |     |     |     |     | X   |
|                        |                |        |        |             | 1016 (Fixed with Printer 120V) .....            |                       |     |     |     |     | X   |     |     |
|                        |                |        |        |             | 1016 (Fixed 220V) .....                         |                       |     | X   |     |     |     |     |     |
|                        |                |        |        |             | 1016 (Fixed with Printer 220V) .....            |                       | X   |     |     |     |     |     |     |
|                        |                |        |        |             | 1016 + (Variable 120V) .....                    |                       |     |     |     |     |     | X   |     |
|                        |                |        |        |             | 1016 + (Variable with Printer 120V) .....       |                       |     |     | X   |     |     |     |     |
|                        |                |        |        |             | 1016 + (Variable 220V) .....                    |                       |     | X   |     |     |     |     |     |
|                        |                |        |        |             | 1016 + (Variable with Printer 220V) .....       | X                     |     |     |     |     |     |     |     |
|                        | 16             | P      | 150824 | 912         | LABEL, Caution .....                            | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
|                        | 26             | P      | 418335 | 208         | CAP, Fill .....                                 | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
|                        | 72             | P      | 79821  | 001         | GROMMET .....                                   | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
|                        | 73             | P      | 129361 | 962         | SPEED, Nut, #6-32 .....                         | 2                     | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
|                        | 75             | P      | 129360 | 900         | CLIP, Drain Tube .....                          | 3                     | 3   | 3   | 3   | 3   | 3   | 3   | 3   |
|                        | 82             | P      | 74647  | 061         | SCREW, #4, 1/4" Lg. Self-tapping .....          | 3                     | 3   | 3   | 3   | 3   | 3   | 3   | 3   |
|                        | 88             | P      | 93910  | 939         | SCREW, Sems., #10-24 x 3/4" Lg. ....            | 9                     | 9   | 9   | 9   | 9   | 9   | 9   | 9   |
|                        | 96             | P      | 150473 | 132         | SCREW, #6-32 Flat Hd. C'Sink. 1"Lg. ....        | 2                     | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| 106                    | P              | 56401  | 040    |             | HOLE PLUG .....                                 | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 108                    | P              |        |        |             | EDGE MOLDING, R1201-400 .....                   | A/R                   | A/R | A/R | A/R | A/R | A/R | A/R | A/R |
| 121                    | P              | 56401  | 810    |             | LABEL, Caution, Cleaning .....                  | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 123                    | P              | 400009 | 086    |             | LABEL, Warning .....                            | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 125                    | P              | 400027 | 717    |             | FOAM, Silicon, 1/8" Thk. ....                   | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 126                    | P              |        |        |             | ADHESIVE, Silicon, R5300-200 .....              | A/R                   |     |     |     |     |     |     |     |
| 147                    | P              | 400009 | 159    |             | FASTENER, Swifftach, Nylon Fastener 5" Long ... | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 154                    | P              | 400009 | 207    |             | TUBE, Siteglass .....                           | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |



| FIG. &<br>INDEX<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                               | UNITS PER<br>ASSEMBLY |     |     |     |     |     |     |     |
|------------------------|----------------|--------|-----|-------------|-------------------------------------------|-----------------------|-----|-----|-----|-----|-----|-----|-----|
| 9-5                    |                |        |     |             | <b>CONTROL ASSEMBLY</b>                   |                       |     |     |     |     |     |     |     |
|                        |                |        |     |             | 1016 (Fixed 120V) .....                   |                       |     |     |     |     |     |     | X   |
|                        |                |        |     |             | 1016 (Fixed with Printer 120V) .....      |                       |     |     |     |     | X   |     |     |
|                        |                |        |     |             | 1016 (Fixed 220V) .....                   |                       |     | X   |     |     |     |     |     |
|                        |                |        |     |             | 1016 (Fixed with Printer 220V) .....      |                       | X   |     |     |     |     |     |     |
|                        |                |        |     |             | 1016 + (Variable 120V) .....              |                       |     |     |     |     |     | X   |     |
|                        |                |        |     |             | 1016 + (Variable with Printer 120V) ..... |                       |     |     | X   |     |     |     |     |
|                        |                |        |     |             | 1016 + (Variable 220V) .....              |                       |     | X   |     |     |     |     |     |
|                        |                |        |     |             | 1016 + (Variable with Printer 220V) ..... | X                     |     |     |     |     |     |     |     |
|                        |                |        |     |             |                                           |                       |     |     |     |     |     |     |     |
| 42                     | P              | 52737  | 091 |             | FITTING, Compression, Tube .....          | 2                     | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| 56                     | P              | 400027 | 715 |             | TUBE, Vent, Upper .....                   | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 63                     | P              | 84371  | 004 |             | INSERT, Tube .....                        | 7                     | 7   | 7   | 7   | 7   | 7   | 7   | 7   |
| 89                     | P              | 93910  | 937 |             | SCREW, Sems., #10-24 x 1/2" Lg. ....      | 1                     | 1   | 1   | 1   |     |     |     |     |
| 152                    | P              | 400077 | 548 |             | BRACKET, Shell, Piping .....              | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 157                    | P              | 93910  | 934 |             | SEMS, Screw, #10-32 x 1/2" .....          | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 159                    | P              | 129360 | 541 |             | KEPSNUT, #10-24 .....                     | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 161                    | P              | 129360 | 015 |             | FLANGE, Locknut, 1/4-20 .....             | 2                     | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| 163                    | P              | 150828 | 312 |             | FLANGE, Bolt, 1/4-20 x 1/2" .....         | 2                     | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| 165                    | P              | 400009 | 208 |             | SOUND, Barrier .....                      | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 167                    | P              | 28904  | 091 |             | NIPPLE, Brass, 1/8 NPT x 3-1/2" .....     | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 169                    | P              | 400009 | 213 |             | STREET TEE, 1/8 NPT Brass .....           | 1                     | 1   | 1   | 1   | 1   | 1   | 1   | 1   |
| 170                    | P              | 400009 | 211 |             | FITTING, Ell, 1/8 NPT x 5/16 ODT .....    | 5                     | 5   | 5   | 5   | 5   | 5   | 5   | 5   |
| 172                    | P              | R-3500 | 772 |             | TUBE, Teflon, 5/16 ODT x 3/16 ID .....    | A/R                   | A/R | A/R | A/R | A/R | A/R | A/R | A/R |

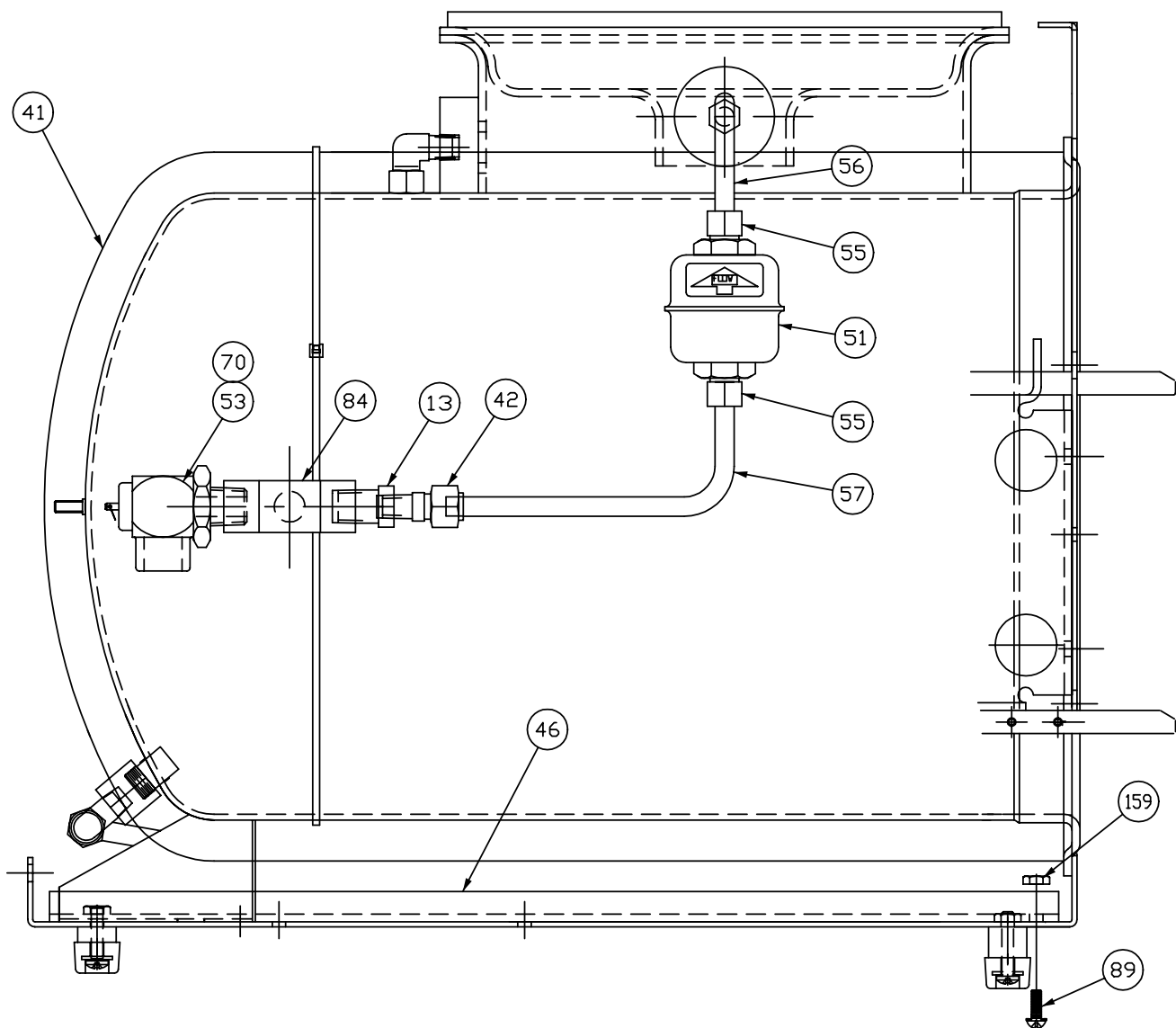


**Figure 9-6. Safety Valve Trap Assembly**

| FIG. &<br>INDEX<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                               | UNITS PER<br>ASSEMBLY |   |   |   |   |   |   |   |
|------------------------|----------------|--------|-----|-------------|-------------------------------------------|-----------------------|---|---|---|---|---|---|---|
| 9-6                    |                |        |     |             | <b>CONTROL ASSEMBLY</b>                   |                       |   |   |   |   |   |   |   |
|                        |                |        |     |             | 1016 (Fixed 120V) .....                   |                       |   |   |   |   |   |   | X |
|                        |                |        |     |             | 1016 (Fixed with Printer 120V) .....      |                       |   |   |   |   | X |   |   |
|                        |                |        |     |             | 1016 (Fixed 220V) .....                   |                       |   | X |   |   |   |   |   |
|                        |                |        |     |             | 1016 (Fixed with Printer 220V) .....      |                       | X |   |   |   |   |   |   |
|                        |                |        |     |             | 1016 + (Variable 120V) .....              |                       |   |   |   |   |   | X |   |
|                        |                |        |     |             | 1016 + (Variable with Printer 120V) ..... |                       |   |   | X |   |   |   |   |
|                        |                |        |     |             | 1016 + (Variable 220V) .....              |                       |   | X |   |   |   |   |   |
|                        |                |        |     |             | 1016 + (Variable with Printer 220V) ..... | X                     |   |   |   |   |   |   |   |
|                        |                |        |     |             |                                           |                       |   |   |   |   |   |   |   |
| 13                     | P              | 76053  | 042 |             | BUSHING, Reducing .....                   | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 41                     | P              | 422922 | 155 |             | INSULATION, Shell .....                   | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 42                     | P              | 52737  | 091 |             | FITTING, Compression, Tube .....          | 2                     | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 46                     | P              | 134470 | 390 |             | BRACKET, Bottom, Enclosure Support .....  | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 51                     | P              | 400009 | 085 |             | AIR VENT .....                            | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 53                     | P              | 418335 | 216 |             | VALVE, Relief .....                       | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 55                     | P              | 129357 | 611 |             | NUT-FITTING, Chamber .....                | 2                     | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 56                     | P              | 400027 | 715 |             | TUBE, Vent, Upper .....                   | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 57                     | P              | 400027 | 714 |             | TUBE, Vent, Lower .....                   | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 70                     | P              | 29162  | 091 |             | NIPPLE, Pipe, 1/2", 1" Lg. ....           | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 84                     | P              | 400009 | 087 |             | TEE, Brass, 1/2" NPT, Female .....        | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 89                     | P              | 93910  | 937 |             | SCREW, Sems., #10-24 x 1/2" Lg. ....      | 1                     | 1 | 1 | 1 |   |   |   |   |
| 159                    | P              | 129360 | 541 |             | KEPSNUT, #10-24 .....                     | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

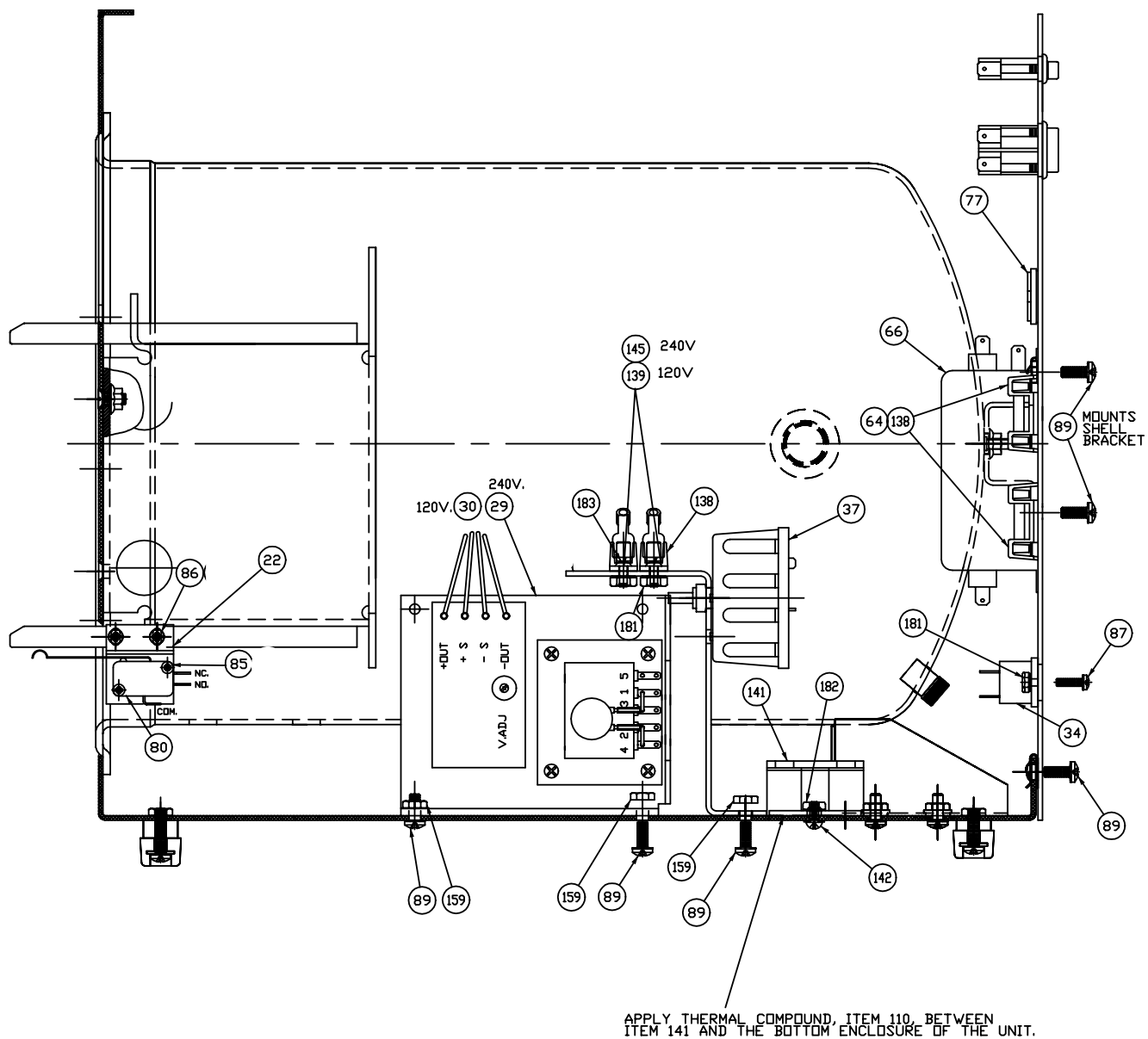


**Figure 9-7. Power Supply Assembly**

| FIG. &<br>INDEX<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                               | UNITS PER<br>ASSEMBLY |   |   |   |   |   |   |   |
|------------------------|----------------|--------|-----|-------------|-------------------------------------------|-----------------------|---|---|---|---|---|---|---|
| 9-7                    |                |        |     |             | <b>CONTROL ASSEMBLY</b>                   |                       |   |   |   |   |   |   |   |
|                        |                |        |     |             | 1016 (Fixed 120V) .....                   |                       |   |   |   |   |   |   | X |
|                        |                |        |     |             | 1016 (Fixed with Printer 120V) .....      |                       |   |   |   |   | X |   |   |
|                        |                |        |     |             | 1016 (Fixed 220V) .....                   |                       |   | X |   |   |   |   |   |
|                        |                |        |     |             | 1016 (Fixed with Printer 220V) .....      |                       | X |   |   |   |   |   |   |
|                        |                |        |     |             | 1016 + (Variable 120V) .....              |                       |   |   |   |   |   | X |   |
|                        |                |        |     |             | 1016 + (Variable with Printer 120V) ..... |                       |   |   | X |   |   |   |   |
|                        |                |        |     |             | 1016 + (Variable 220V) .....              |                       |   | X |   |   |   |   |   |
|                        |                |        |     |             | 1016 + (Variable with Printer 220V) ..... | X                     |   |   |   |   |   |   |   |
|                        |                |        |     |             |                                           |                       |   |   |   |   |   |   |   |
| 22                     | P              | 93910  | 149 |             | BRACKET, S.W., Door Limit .....           | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 29                     | P              | 400077 | 559 |             | POWER SUPPLY, Assembly (240V) .....       | 1                     | 1 | 1 | 1 |   |   |   |   |
| 30                     | P              | 400077 | 560 |             | POWER SUPPLY, Assembly (120V) .....       |                       |   |   |   | 1 | 1 | 1 | 1 |
| 33                     | P              | 129360 | 483 |             | STICKER, Ground (not shown) .....         | 2                     | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 34                     | P              | 400028 | 002 |             | RECEPTACLE, AC .....                      | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 37                     | P              | 93910  | 912 |             | CONTROL, Overtemperature .....            | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 64                     | P              | 400009 | 257 |             | FUSE, 7 Amp .....                         | 6                     | 6 | 6 | 6 |   |   |   |   |
| 66                     | P              | 413720 | 563 |             | LINE FILTER, AC .....                     | 1                     | 1 | 1 | 1 |   |   |   |   |
| 77                     | P              | 150476 | 930 |             | WIRE TIE, Mount .....                     | 1                     | 1 |   |   | 1 | 1 |   |   |
| 80                     | P              | 93910  | 148 |             | SWITCH, Limit .....                       | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 85                     | P              | 93910  | 936 |             | SCREW, Sems., #4-40 x 3/4" Lg. ....       | 2                     | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 86                     | P              | 93908  | 033 |             | SCREW, Sems., #6-32 x 1/4" Lg. ....       | 2                     | 2 |   |   | 2 | 2 |   |   |
| 87                     | P              | 93908  | 034 |             | SCREW, Sems., #6-32 x 1/2" Lg. ....       | 2                     | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 89                     | P              | 93910  | 937 |             | SCREW, Sems., #10-24 x 1/2" Lg. ....      | 1                     | 1 | 1 | 1 |   |   |   |   |
| 138                    | P              | 150822 | 678 |             | BLOCK, Fuse .....                         | 2                     | 2 | 2 | 2 |   |   |   |   |
| 139                    | P              | 20341  | 091 |             | FUSE, 1/2 Amp, Slow Blow .....            |                       |   |   |   | 6 | 6 | 6 | 6 |
| 141                    | P              | 129360 | 018 |             | RELAY, Solid State .....                  | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 142                    | P              | 93908  | 037 |             | SCREW, Sems., #8-32 x 1/2" Lg. ....       | 2                     | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 145                    | P              | 45888  | 091 |             | FUSE, 1/4 Amp, Slow Blow .....            | 6                     | 6 | 6 | 6 |   |   |   |   |
| 151                    | P              | 82675  | 001 |             | GROUND, Screw (not shown) .....           | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 159                    | P              | 129360 | 541 |             | KEPSNUT, #10-24 .....                     | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 181                    | P              | 484121 | 002 |             | KEPSNUT, #6-32 .....                      | 4                     | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 182                    | P              | 129359 | 531 |             | KEPSNUT, #8-32 .....                      | 2                     | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 183                    | P              | 93908  | 039 |             | SEMS, Screw, #6-32 x 3/8" .....           | 4                     | 4 | 4 | 4 |   |   |   |   |

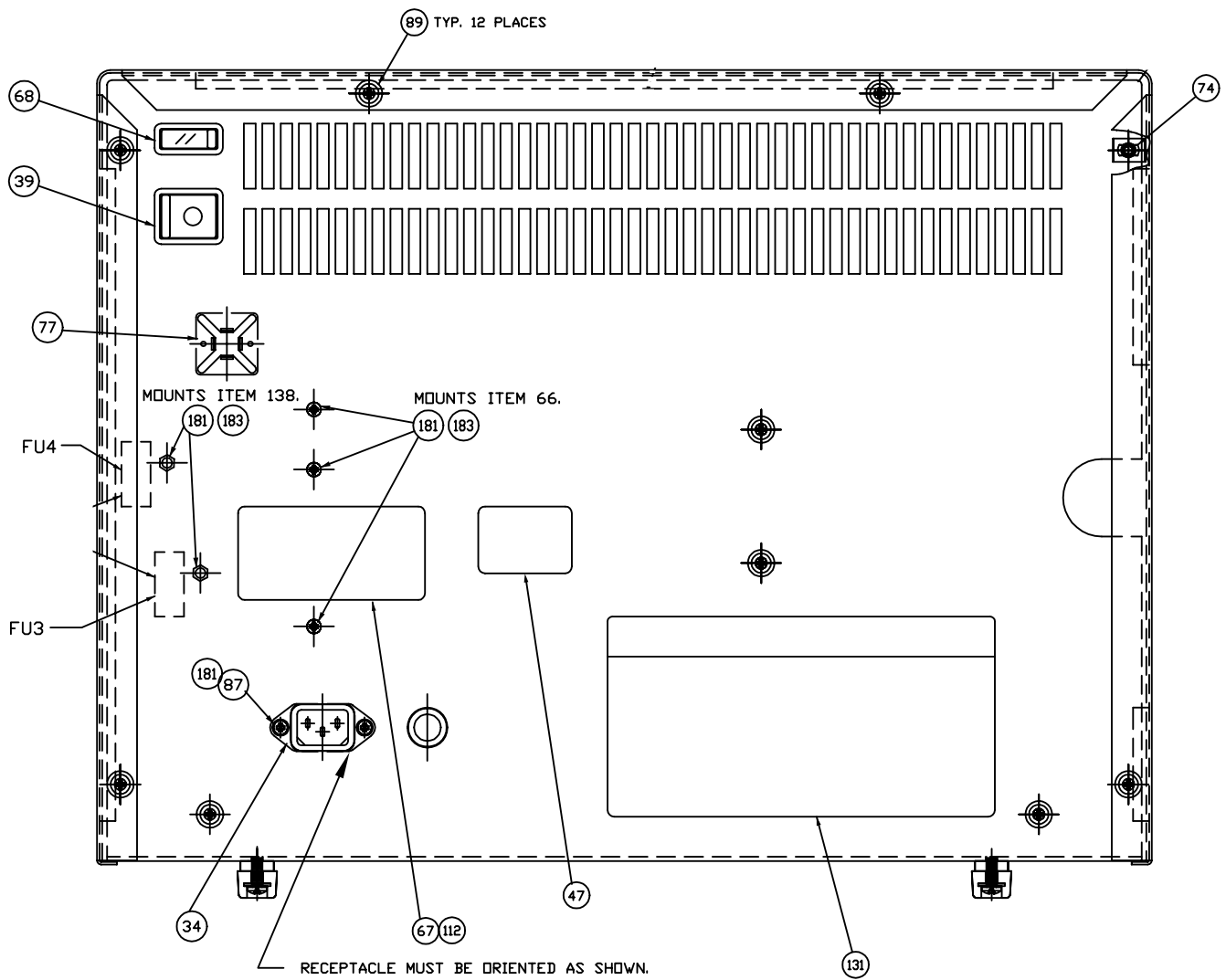


**Figure 9-8. Rear View of Sterilizer**

| FIG. &<br>INDEX<br>NO. | PART<br>NUMBER |        |        | S<br>V<br>C | DESCRIPTION                               | UNITS PER<br>ASSEMBLY |    |    |    |    |    |    |    |
|------------------------|----------------|--------|--------|-------------|-------------------------------------------|-----------------------|----|----|----|----|----|----|----|
| 9-8                    |                |        |        |             | <b>CONTROL ASSEMBLY</b>                   |                       |    |    |    |    |    |    |    |
|                        |                |        |        |             | 1016 (Fixed 120V) .....                   |                       |    |    |    |    |    |    | X  |
|                        |                |        |        |             | 1016 (Fixed with Printer 120V) .....      |                       |    |    |    |    | X  |    |    |
|                        |                |        |        |             | 1016 (Fixed 220V) .....                   |                       |    | X  |    |    |    |    |    |
|                        |                |        |        |             | 1016 (Fixed with Printer 220V) .....      |                       | X  |    |    |    |    |    |    |
|                        |                |        |        |             | 1016 + (Variable 120V) .....              |                       |    |    |    |    |    | X  |    |
|                        |                |        |        |             | 1016 + (Variable with Printer 120V) ..... |                       |    |    | X  |    |    |    |    |
|                        |                |        |        |             | 1016 + (Variable 220V) .....              |                       |    | X  |    |    |    |    |    |
|                        |                |        |        |             | 1016 + (Variable with Printer 220V) ..... | X                     |    |    |    |    |    |    |    |
|                        | 34             | P      | 400028 | 002         | RECEPTACLE, AC .....                      | 1                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  |
|                        | 35             | P      | 93910  | 907         | POWER CORD, 120V (not shown) .....        |                       |    |    |    | 1  | 1  | 1  | 1  |
|                        | 39             | P      | 56401  | 876         | SWITCH, Rocker, Power Off .....           | 1                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  |
|                        | 47             | P      | 150828 | 999         | LABEL, Bar Code .....                     | 1                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  |
|                        | 67             | P      | 56401  | 833         | DATA PLATE INFO (120V) (220V/240V) .....  | 1                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  |
|                        | 68             | P      | 56401  | 877         | SWITCH, Rocker, Reset .....               | 1                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  |
|                        | 74             | P      | 413720 | 336         | SPEED NUT, #10-24 .....                   | 10                    | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
|                        | 77             | P      | 150476 | 930         | WIRE TIE, Mount .....                     | 1                     | 1  |    |    | 1  | 1  |    |    |
|                        | 87             | P      | 93908  | 034         | SCREW, Sems., #6-32 x 1/2" Lg. ....       | 2                     | 2  | 2  | 2  | 2  | 2  | 2  | 2  |
|                        | 89             | P      | 93910  | 937         | SCREW, Sems., #10-24 x 1/2" Lg. ....      | 1                     | 1  | 1  | 1  |    |    |    |    |
|                        | 91             | P      | 400028 | 009         | POWER CORD, 220V (not shown) .....        | 1                     | 1  | 1  | 1  |    |    |    |    |
| 112                    | P              | 400009 | 088    |             | DATA PLATE .....                          | 1                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  |
| 131                    | P              | 400028 | 005    |             | LABEL, Warning .....                      | 1                     | 1  | 1  | 1  | 1  | 1  | 1  | 1  |
| 181                    | P              | 484121 | 002    |             | KEPSNUT, #6-32 .....                      | 4                     | 4  | 4  | 4  | 4  | 4  | 4  | 4  |
| 183                    | P              | 93908  | 039    |             | SEMS, Screw, #6-32 x 3/8" .....           | 4                     | 4  | 4  | 4  |    |    |    |    |

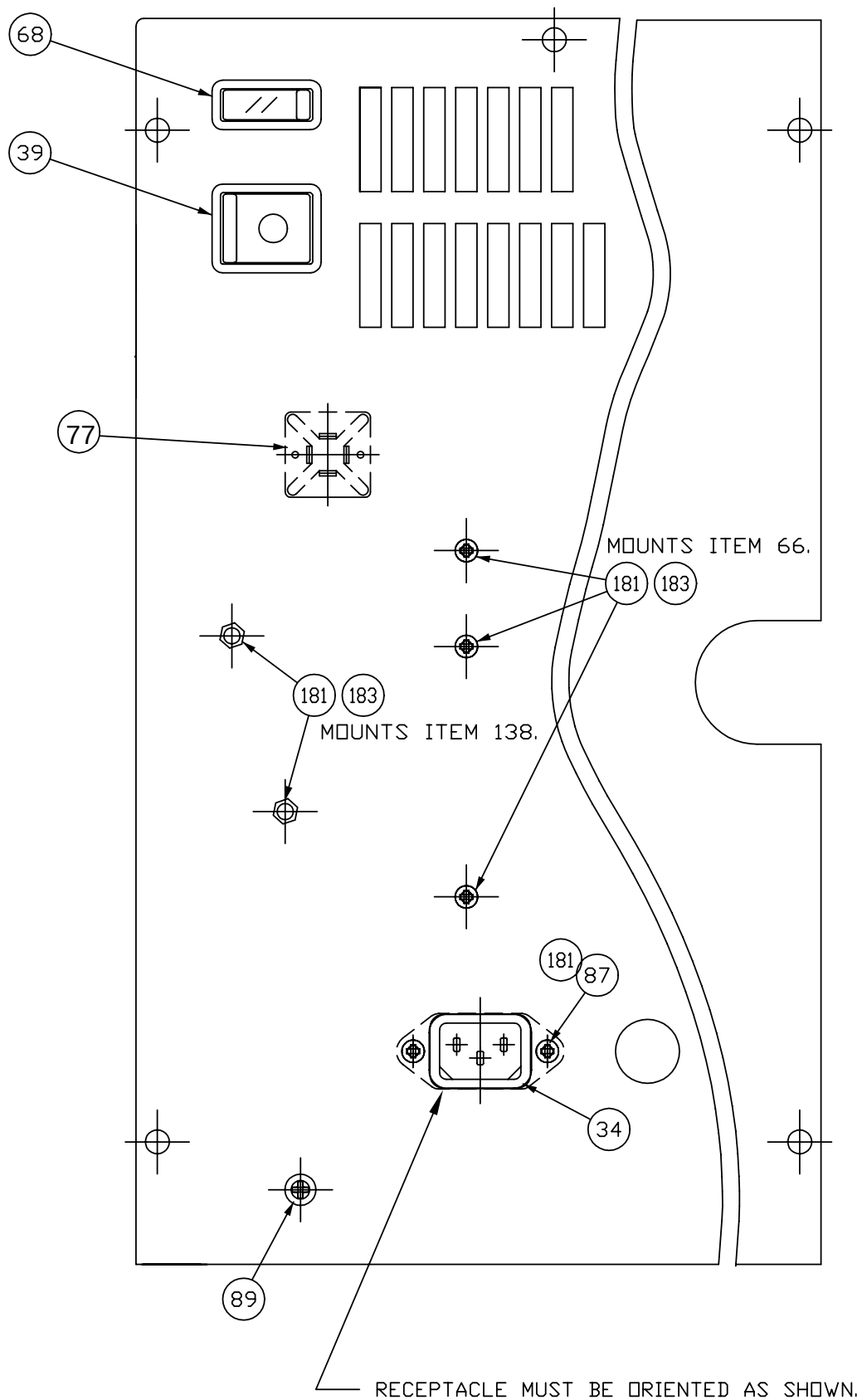


**Figure 9-9. Power Switch Assembly**

| FIG. &<br>INDEX<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                               | UNITS PER<br>ASSEMBLY |   |   |   |   |   |   |   |
|------------------------|----------------|--------|-----|-------------|-------------------------------------------|-----------------------|---|---|---|---|---|---|---|
| 9-9                    |                |        |     |             | <b>CONTROL ASSEMBLY</b>                   |                       |   |   |   |   |   |   |   |
|                        |                |        |     |             | 1016 (Fixed 120V) .....                   |                       |   |   |   |   |   |   | X |
|                        |                |        |     |             | 1016 (Fixed with Printer 120V) .....      |                       |   |   |   |   | X |   |   |
|                        |                |        |     |             | 1016 (Fixed 220V) .....                   |                       |   | X |   |   |   |   |   |
|                        |                |        |     |             | 1016 (Fixed with Printer 220V) .....      |                       | X |   |   |   |   |   |   |
|                        |                |        |     |             | 1016 + (Variable 120V) .....              |                       |   |   |   |   |   | X |   |
|                        |                |        |     |             | 1016 + (Variable with Printer 120V) ..... |                       |   |   | X |   |   |   |   |
|                        |                |        |     |             | 1016 + (Variable 220V) .....              |                       |   | X |   |   |   |   |   |
|                        |                |        |     |             | 1016 + (Variable with Printer 220V) ..... | X                     |   |   |   |   |   |   |   |
|                        |                |        |     |             |                                           |                       |   |   |   |   |   |   |   |
| 34                     | P              | 400028 | 002 |             | RECEPTACLE, AC .....                      | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 39                     | P              | 56401  | 876 |             | SWITCH, Rocker, Power Off .....           | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 68                     | P              | 56401  | 877 |             | SWITCH, Rocker, Reset .....               | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 77                     | P              | 150476 | 930 |             | WIRE TIE, Mount .....                     | 1                     | 1 |   |   | 1 | 1 |   |   |
| 87                     | P              | 93908  | 034 |             | SCREW, Sems., #6-32 x 1/2" Lg. ....       | 2                     | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 89                     | P              | 93910  | 937 |             | SCREW, Sems., #10-24 x 1/2" Lg. ....      | 1                     | 1 | 1 | 1 |   |   |   |   |
| 181                    | P              | 484121 | 002 |             | KEPSNUT, #6-32 .....                      | 4                     | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 183                    | P              | 93908  | 039 |             | SCREW, Sems., #6-32 x 3/8" .....          | 4                     | 4 | 4 | 4 |   |   |   |   |

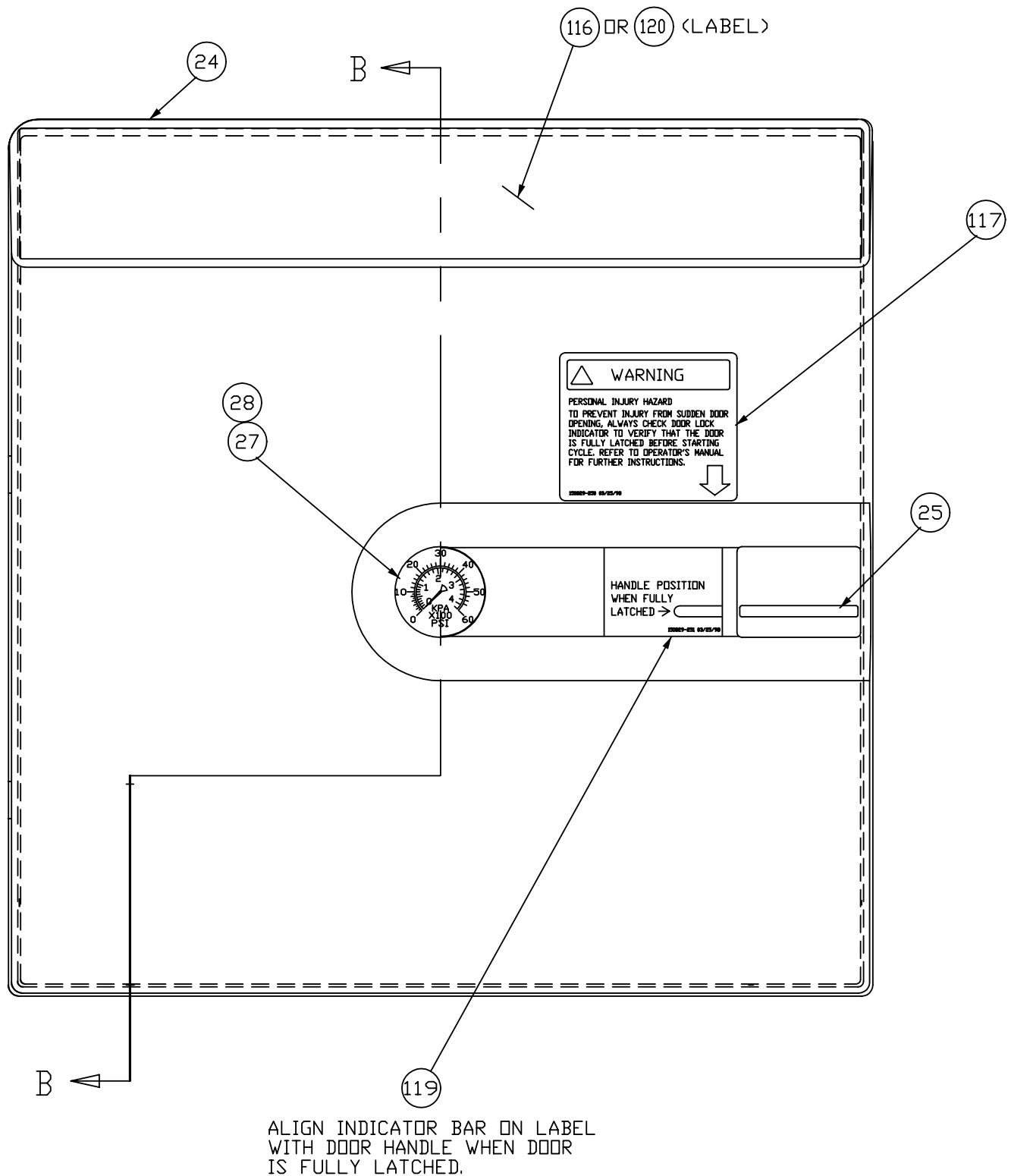
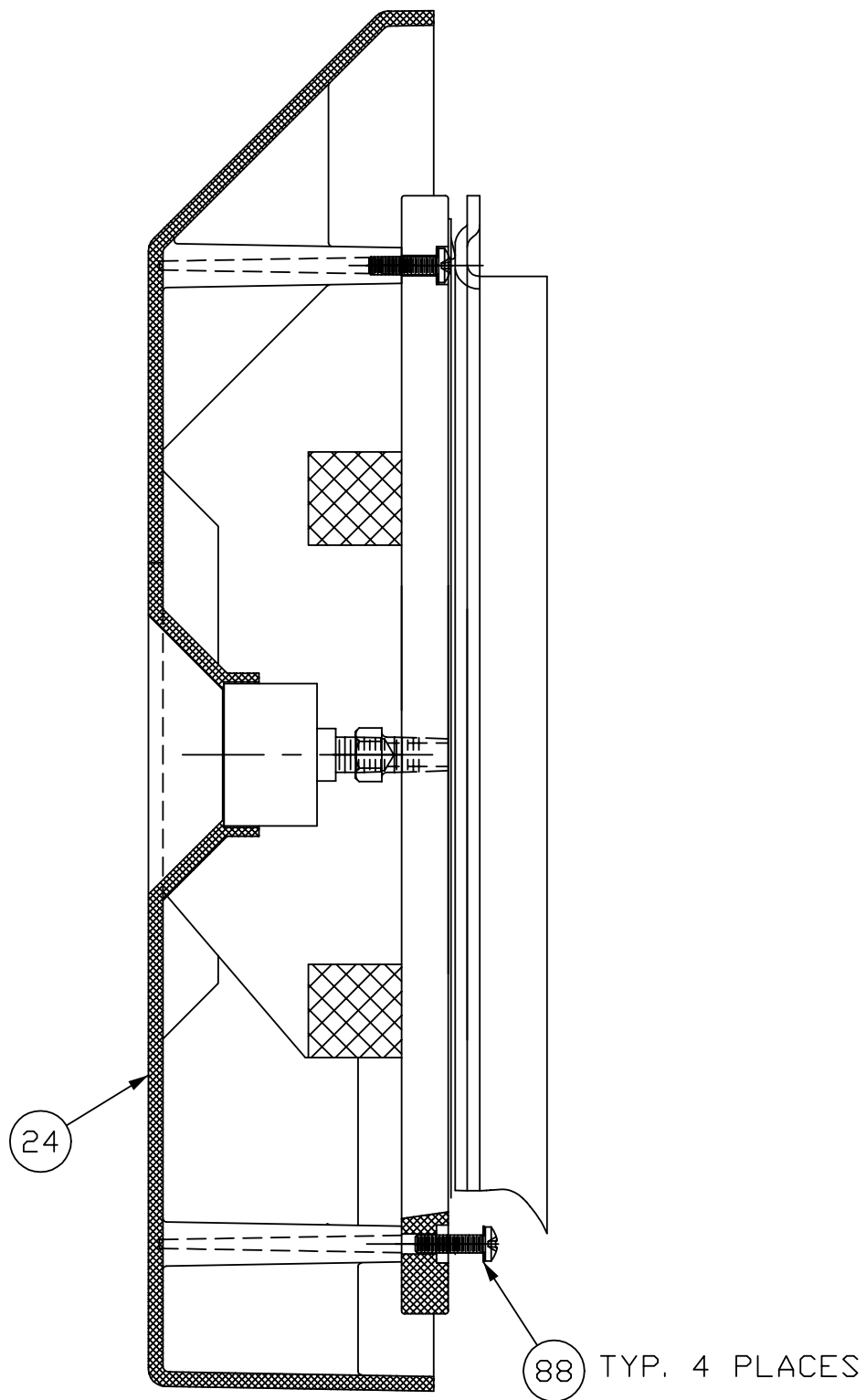


**Figure 9-10. Front Door Assembly**

| FIG. &<br>INDEX<br>NO. | PART<br>NUMBER |        |        | S<br>V<br>C | DESCRIPTION                               | UNITS PER<br>ASSEMBLY |   |   |   |   |   |   |   |
|------------------------|----------------|--------|--------|-------------|-------------------------------------------|-----------------------|---|---|---|---|---|---|---|
| 9-10                   |                |        |        |             | <b>CONTROL ASSEMBLY</b>                   |                       |   |   |   |   |   |   |   |
|                        |                |        |        |             | 1016 (Fixed 120V) .....                   |                       |   |   |   |   |   |   | X |
|                        |                |        |        |             | 1016 (Fixed with Printer 120V) .....      |                       |   |   |   |   | X |   |   |
|                        |                |        |        |             | 1016 (Fixed 220V) .....                   |                       |   | X |   |   |   |   |   |
|                        |                |        |        |             | 1016 (Fixed with Printer 220V) .....      |                       | X |   |   |   |   |   |   |
|                        |                |        |        |             | 1016 + (Variable 120V) .....              |                       |   |   |   |   |   | X |   |
|                        |                |        |        |             | 1016 + (Variable with Printer 120V) ..... |                       |   |   | X |   |   |   |   |
|                        |                |        |        |             | 1016 + (Variable 220V) .....              |                       |   | X |   |   |   |   |   |
|                        |                |        |        |             | 1016 + (Variable with Printer 220V) ..... | X                     |   |   |   |   |   |   |   |
|                        | 24             | P      | 426637 | 264         | COVER, Door .....                         | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
|                        | 25             | P      | 400077 | 561         | LATCH, Door .....                         | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
|                        | 27             | P      | 400028 | 096         | GAGE, Pressure .....                      | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
|                        | 28             | P      | 400009 | 348         | EXTENSION, Pressure Gage .....            | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 116                    | P              | 134473 | 280    |             | LABEL, Ten Sixteen .....                  |                       | 1 |   | 1 |   | 1 |   | 1 |
| 117                    | P              | 150829 | 250    |             | LABEL, Warning, Door Lock .....           | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 119                    | P              | 150829 | 251    |             | LABEL, Door Lock Indicator .....          | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 120                    | P              | 134473 | 310    |             | LABEL, Ten Sixteen + .....                | 1                     |   | 1 |   | 1 |   | 1 |   |



## SECTION B - B

**Figure 9-11. Front Door Assembly**

| FIG. &<br>INDEX<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                               | UNITS PER<br>ASSEMBLY |   |   |   |   |   |   |   |
|------------------------|----------------|--------|-----|-------------|-------------------------------------------|-----------------------|---|---|---|---|---|---|---|
| 9-11                   |                |        |     |             | CONTROL ASSEMBLY                          |                       |   |   |   |   |   |   |   |
|                        |                |        |     |             | 1016 (Fixed 120V) .....                   |                       |   |   |   |   |   |   | X |
|                        |                |        |     |             | 1016 (Fixed with Printer 120V) .....      |                       |   |   |   |   | X |   |   |
|                        |                |        |     |             | 1016 (Fixed 220V) .....                   |                       |   | X |   |   |   |   |   |
|                        |                |        |     |             | 1016 (Fixed with Printer 220V) .....      |                       | X |   |   |   |   |   |   |
|                        |                |        |     |             | 1016 + (Variable 120V) .....              |                       |   |   |   |   |   | X |   |
|                        |                |        |     |             | 1016 + (Variable with Printer 120V) ..... |                       |   |   | X |   |   |   |   |
|                        |                |        |     |             | 1016 + (Variable 220V) .....              |                       |   | X |   |   |   |   |   |
|                        |                |        |     |             | 1016 + (Variable with Printer 220V) ..... | X                     |   |   |   |   |   |   |   |
| 24                     | P              | 426637 | 264 |             | COVER, Door .....                         | 1                     | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 88                     | P              | 93910  | 939 |             | SCREW, Sems., #10-24 x 3/4" Lg. ....      | 9                     | 9 | 9 | 9 | 9 | 9 | 9 | 9 |

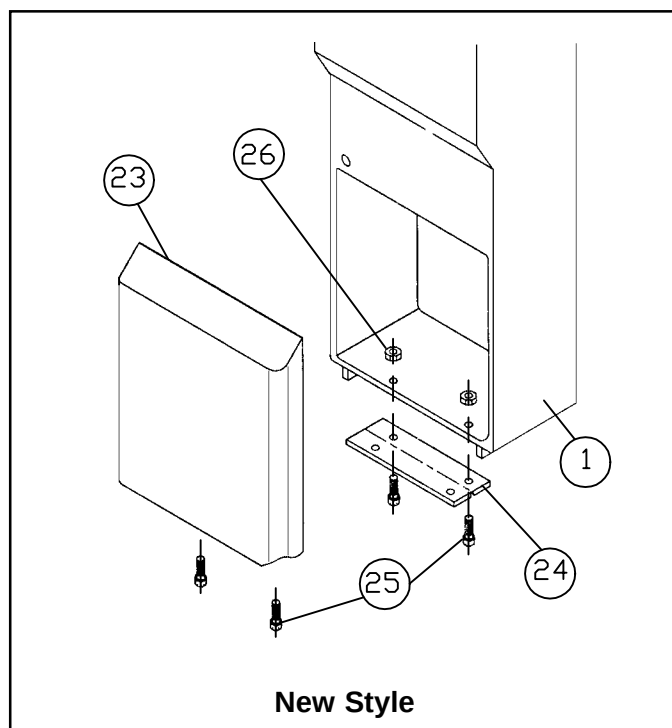
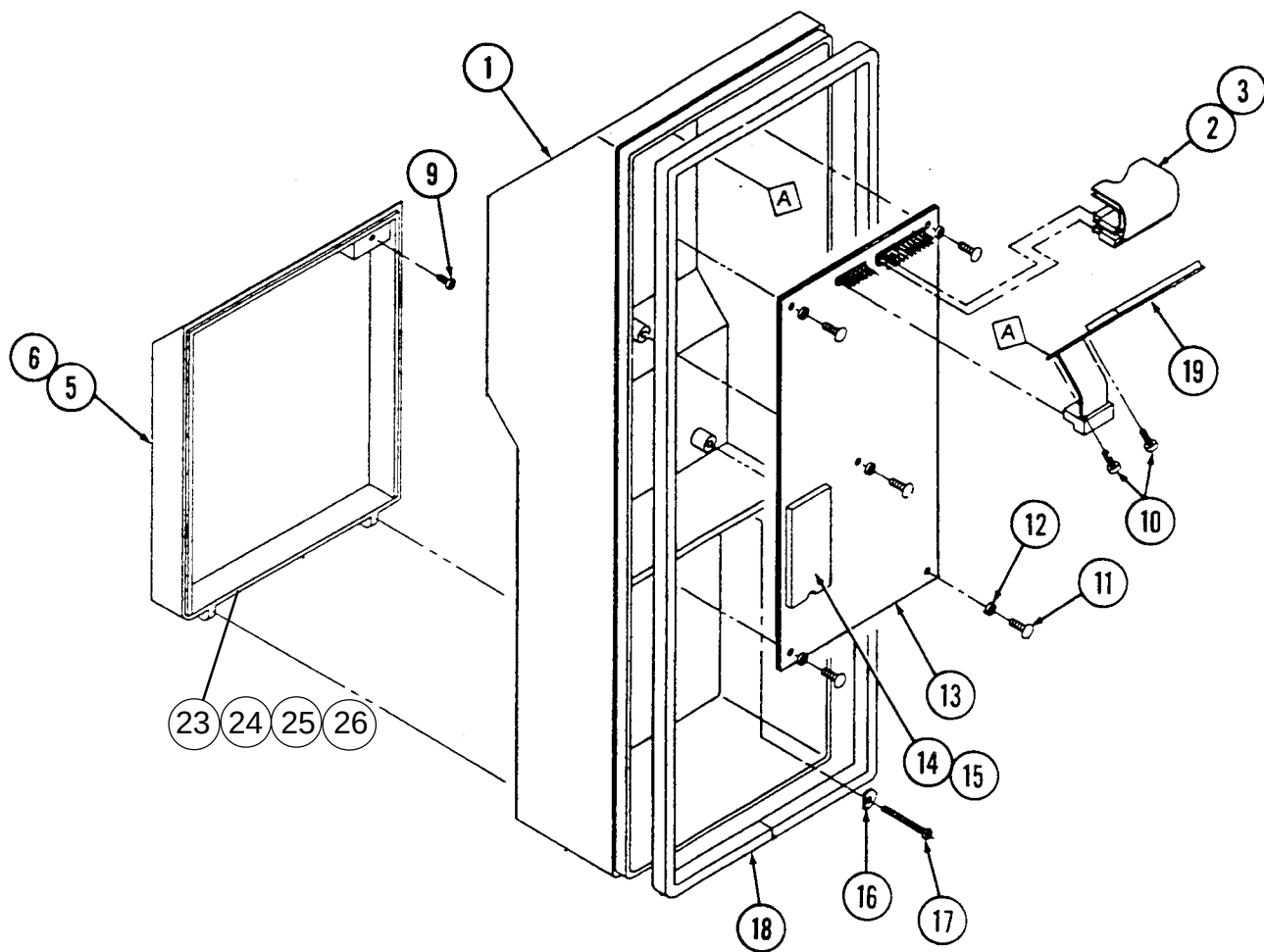


**Figure 9-12. Control Assembly**

| FIG. &<br>INDEX<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                            | UNITS PER<br>ASSEMBLY |   |   |   |  |  |  |  |
|------------------------|----------------|--------|-----|-------------|----------------------------------------|-----------------------|---|---|---|--|--|--|--|
|                        |                |        |     |             |                                        |                       |   |   |   |  |  |  |  |
| <b>9-12</b>            | P              | 426637 | 269 |             | <b>CONTROL ASSEMBLY</b>                |                       |   |   |   |  |  |  |  |
|                        | P              | 426637 | 271 |             | 1016 (Fixed) .....                     | X                     |   |   |   |  |  |  |  |
|                        | P              | 426637 | 270 |             | 1016 + (Fixed, W/Printer) .....        |                       | X |   |   |  |  |  |  |
|                        | P              | 426637 | 272 |             | 1016 (Programmable) .....              |                       |   | X |   |  |  |  |  |
|                        | P              | 426637 | 272 |             | 1016 + (Programmable, W/Printer) ..... |                       |   |   | X |  |  |  |  |
| 1                      | P              | 426637 | 265 |             | COVER, Control .....                   | 1                     | 1 | 1 | 1 |  |  |  |  |
| 2                      | P              | 146655 | 114 |             | PANEL, Touch, Eagle Ten .....          | 1                     | 1 |   |   |  |  |  |  |
| 3                      | P              | 146655 | 113 |             | PANEL, Touch, Eagle Ten + .....        |                       |   | 1 | 1 |  |  |  |  |
| 4                      | P              | 129361 | 133 |             | CATCH, Magnetic .....                  |                       | 1 |   | 1 |  |  |  |  |
| 5                      | P              | 422922 | 145 |             | DOOR, Printer .....                    | 1                     |   | 1 |   |  |  |  |  |
| 6                      | P              | 422922 | 147 |             | DOOR, Printer W/Window .....           |                       | 1 |   | 1 |  |  |  |  |
| 9                      | P              | 118404 | 045 |             | SCREW, #6-32 x 1/4 .....               |                       | 1 |   | 1 |  |  |  |  |
| 10                     | P              | 129361 | 967 |             | SCREW, Self-Tapping #4-40 x 3/16 ..... | 2                     | 2 | 2 | 2 |  |  |  |  |
| 11                     | P              | 81681  | 001 |             | SCREW, Sems., #6 x 32 x 3/8" lg .....  | 5                     | 5 | 5 | 5 |  |  |  |  |
| 12                     | P              | 129352 | 094 |             | WASHER, Flat #6 .....                  | 5                     | 5 | 5 | 5 |  |  |  |  |
| 13                     | P              | 146653 | 874 |             | CONTROL BOARD .....                    | 1                     | 1 | 1 | 1 |  |  |  |  |
| 14                     | P              | 93910  | 121 |             | EPROM EAGLE 10/1016 .....              | 1                     | 1 |   |   |  |  |  |  |
| 15                     | P              | 93910  | 122 |             | EPROM EAGLE 10 +/1016 + .....          |                       |   | 1 | 1 |  |  |  |  |
| 16                     | P              | 129361 | 972 |             | WASHER, D-shaped .....                 | 1                     |   | 1 |   |  |  |  |  |
| 17                     | P              | 3985   | 041 |             | SCREW, #6-32 x 3/4" .....              | 1                     | 1 | 1 | 1 |  |  |  |  |
| 18                     | P              | 129361 | 134 |             | GASKET .....                           | 1                     | 1 | 1 | 1 |  |  |  |  |
| 19                     | P              | 93910  | 902 |             | DISPLAY, LED Assembly .....            | 1                     | 1 | 1 | 1 |  |  |  |  |
| 20                     | P              | 400009 | 175 |             | HINGE .....                            | 1                     | 1 | 1 | 1 |  |  |  |  |
| 21                     | P              | 400009 | 173 |             | SCREW, #8-32 x 1/2 Nylon .....         | 4                     | 4 | 4 | 4 |  |  |  |  |
| 22                     | P              | 400009 | 174 |             | NUT, Hex, #8-32 Nylon .....            | 4                     | 4 | 4 | 4 |  |  |  |  |
| 23                     | P              | 422922 | 145 |             | DOOR .....                             | 1                     | 1 | 1 | 1 |  |  |  |  |
| 24                     | P              | 400009 | 175 |             | HINGE .....                            | 1                     | 1 | 1 | 1 |  |  |  |  |
| 25                     | P              | 400009 | 173 |             | SCREW, #8-32 x 1/2 Nylon .....         | 4                     | 4 | 4 | 4 |  |  |  |  |
| 26                     | P              | 400009 | 174 |             | NUT, Hex, #8-32 Nylon .....            | 4                     | 4 | 4 | 4 |  |  |  |  |

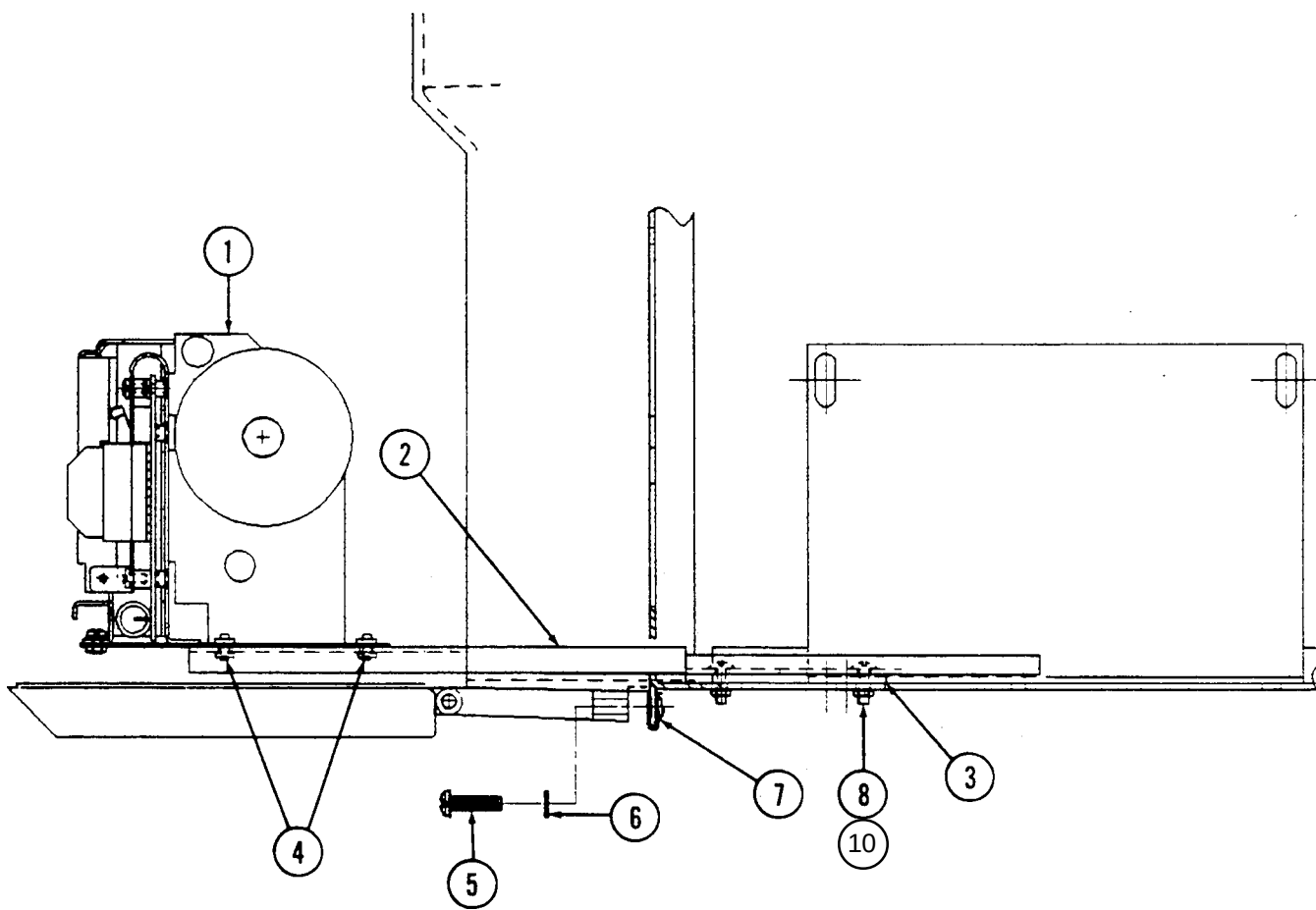


**Figure 9-13. Printer Assembly (Optional)**

| FIG. &<br>INDEX<br>NO. | PART<br>NUMBER |        |     | S<br>V<br>C | DESCRIPTION                                       | UNITS PER<br>ASSEMBLY |  |  |  |  |  |  |
|------------------------|----------------|--------|-----|-------------|---------------------------------------------------|-----------------------|--|--|--|--|--|--|
| 9-13                   |                |        |     |             | <b>PRINTER ASSEMBLY (units with printer) ....</b> | <b>X</b>              |  |  |  |  |  |  |
| 1                      | P              | 400096 | 017 |             | PRINTER AND CABLE ASSEMBLY .....                  | 1                     |  |  |  |  |  |  |
|                        | P              | 146656 | 039 | *           | PRINTER ASSEMBLY                                  |                       |  |  |  |  |  |  |
|                        | P              | 93912  | 377 | *           | PRINTER BOARD ASSEMBLY                            |                       |  |  |  |  |  |  |
|                        | P              | 93909  | 399 | *           | PRINTER MOTOR                                     |                       |  |  |  |  |  |  |
|                        | P              | 755716 | 005 | *           | PRINTER AND CONNECTOR ASSEMBLY                    |                       |  |  |  |  |  |  |
|                        | P              | 400009 | 125 | *           | DECAL, Printer (not shown)                        |                       |  |  |  |  |  |  |
|                        | P              | 93910  | 249 | *           | STUD, Spool                                       |                       |  |  |  |  |  |  |
|                        | P              | 43259  | 091 | *           | SCREW, Set, #6-32 x 3/16 Lg.                      |                       |  |  |  |  |  |  |
|                        | P              | 93910  | 247 | *           | SPOOL                                             |                       |  |  |  |  |  |  |
| 2                      | P              | 400027 | 755 |             | SLIDE .....                                       | 1                     |  |  |  |  |  |  |
| 3                      | P              | 400009 | 130 |             | SPACER .....                                      | 1                     |  |  |  |  |  |  |
| 4                      | P              | 93908  | 033 |             | SCREW, Sems., #6-32 x 1/4" .....                  | 2                     |  |  |  |  |  |  |
| 5                      | P              | 31707  | 041 |             | SCREW, #10-24 x 1-1/8" .....                      | 2                     |  |  |  |  |  |  |
| 6                      | P              | 129354 | 174 |             | LOCKWASHER, Star, #10 .....                       | 2                     |  |  |  |  |  |  |
| 7                      | P              | 17958  | 045 |             | NUT, Speed, #10-24 .....                          | 2                     |  |  |  |  |  |  |
| 8                      | P              | 81669  | 006 |             | SCREW, Truss Head, #8-32 x 1/2" .....             | 2                     |  |  |  |  |  |  |
| 9                      | P              | 129359 | 008 |             | PAPER (Package of 5) (not shown) .....            | 1                     |  |  |  |  |  |  |
| 10                     | P              | 129359 | 531 |             | KEPSNUT, #8-32 .....                              | 2                     |  |  |  |  |  |  |
| 11                     | P              | 150476 | 930 |             | WIRE TIE MOUNT (not shown) .....                  | 1                     |  |  |  |  |  |  |